Korean Influences on Northwest Gardens

Washington Park

ARBORETUM BULLETIN

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Concerning This Issue . . .

Chinese and Japanese gardening styles have been embraced by Northwest gardeners for many years, with the cultures of these countries being folded into the embrace as much as the corresponding flora.

Korea, with unique native plants as well as many in common with both China and Japan, also has its own cultural approach and horticultural presentation to share. For some reason, however, the Korean gardening style—rich in flora, style, symbolism, and culture—has rarely been approached in Northwest (let alone American) horticulture until now.

Sunset Magazine's Steve Lorton is the *Bulletin* editorial board member who suggested devoting this issue to exploring Korean horticulture (see his introductory article). Steve, a frequent visitor to Korea, is very energetic in pointing out how Korean gardening and plant styles suit the Northwest climate and temperament.

Another editorial board member, Dan Hinkley, recently returned from his second Asian plant survey, sponsored in part by The Arboretum Foundation. As a nursery owner and lecturer, Dan's article reflects his enthusiasm for Korean plants. In a sidebar, he suggests exciting future introductions for the Northwest garden.

One source of Korean plant introductions is Korea's Chollipo Arboretum, featured on these pages by Timothy Hohn. Chollipo is just one source of the Washington Park Arboretum's many Korean accessions, described and listed in two articles by Director Emeritus Brian O. Mulligan. Mr. Mulligan also outlines and maps a walking tour of 10 Korean trees in the Arboretum.

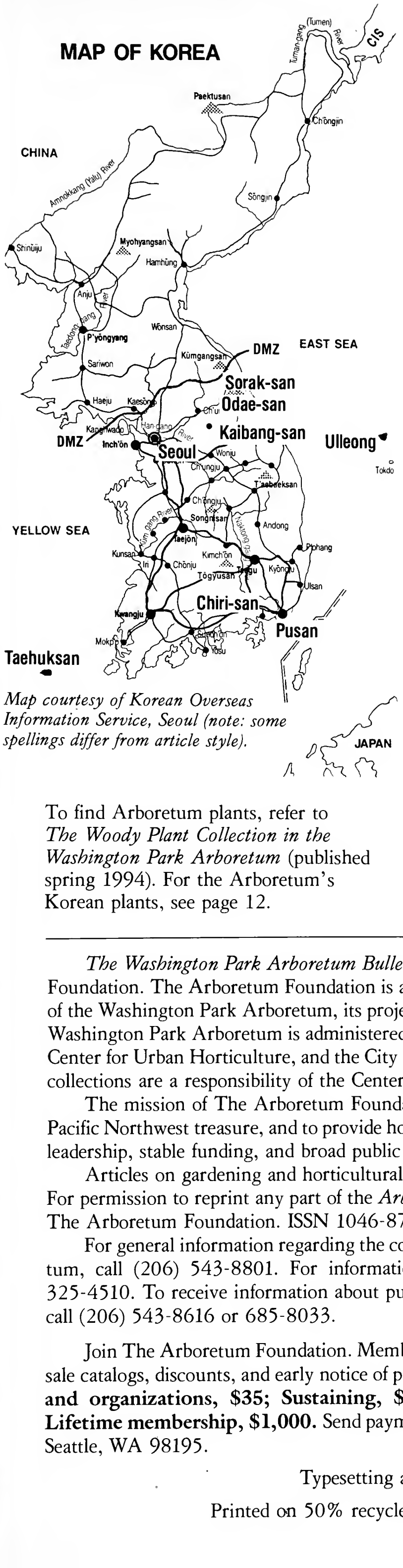
You will find two Korean plants highlighted here for consideration in your garden. Timothy Hohn writes about *Quercus stenophylla*, an evergreen oak underused in the landscape. You also may become very intrigued and excited by Barry Yinger's approach to *Angelica gigas*, the outstanding perennial on the cover.

This undertaking of our editorial board is a special contribution to the sparse literature on Korean horticulture. Center for Urban Horticulture librarian Valerie Easton also has prepared a book list on some other Korean books and articles. And in the book review section, J. C. Raulston reviews *Winter Ornamentals*, authored by our editorial board member, Dan Hinkley.

Last, yet very important to us as members, John Wott, Director of Arboreta, provides his quarterly report. Far from Korean mountains and shores, Dr. Wott updates us on how Korean plant exploration affects us. He also gives us the overview we look forward to in each issue of the *Washington Park Arboretum Bulletin*.

Jan Silver, Editor
The Washington Park Arboretum Bulletin

Cover: *Angelica gigas*. Story by Barry Yinger on page 5. Photo (Heronswood) by Daniel J. Hinkley.



Map courtesy of Korean Overseas Information Service, Seoul (note: some spellings differ from article style).

To find Arboretum plants, refer to *The Woody Plant Collection in the Washington Park Arboretum* (published spring 1994). For the Arboretum's Korean plants, see page 12.

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The Washington Park Arboretum Bulletin is published quarterly as a bonus of membership in The Arboretum Foundation. The Arboretum Foundation is a non-profit organization that was chartered to further the development of the Washington Park Arboretum, its projects and programs, by means of volunteer service and fund raising. The Washington Park Arboretum is administered through cooperative efforts between the University of Washington, its Center for Urban Horticulture, and the City of Seattle Department of Parks and Recreation. The programs and plant collections are a responsibility of the Center for Urban Horticulture.

The mission of The Arboretum Foundation is to ensure stewardship for the Washington Park Arboretum, a Pacific Northwest treasure, and to provide horticultural leadership for the region. This stewardship requires effective leadership, stable funding, and broad public support.

Articles on gardening and horticulturally related subjects are welcome. Please call the *Bulletin* for guidelines. For permission to reprint any part of the *Arboretum Bulletin*, please contact The Arboretum Foundation.

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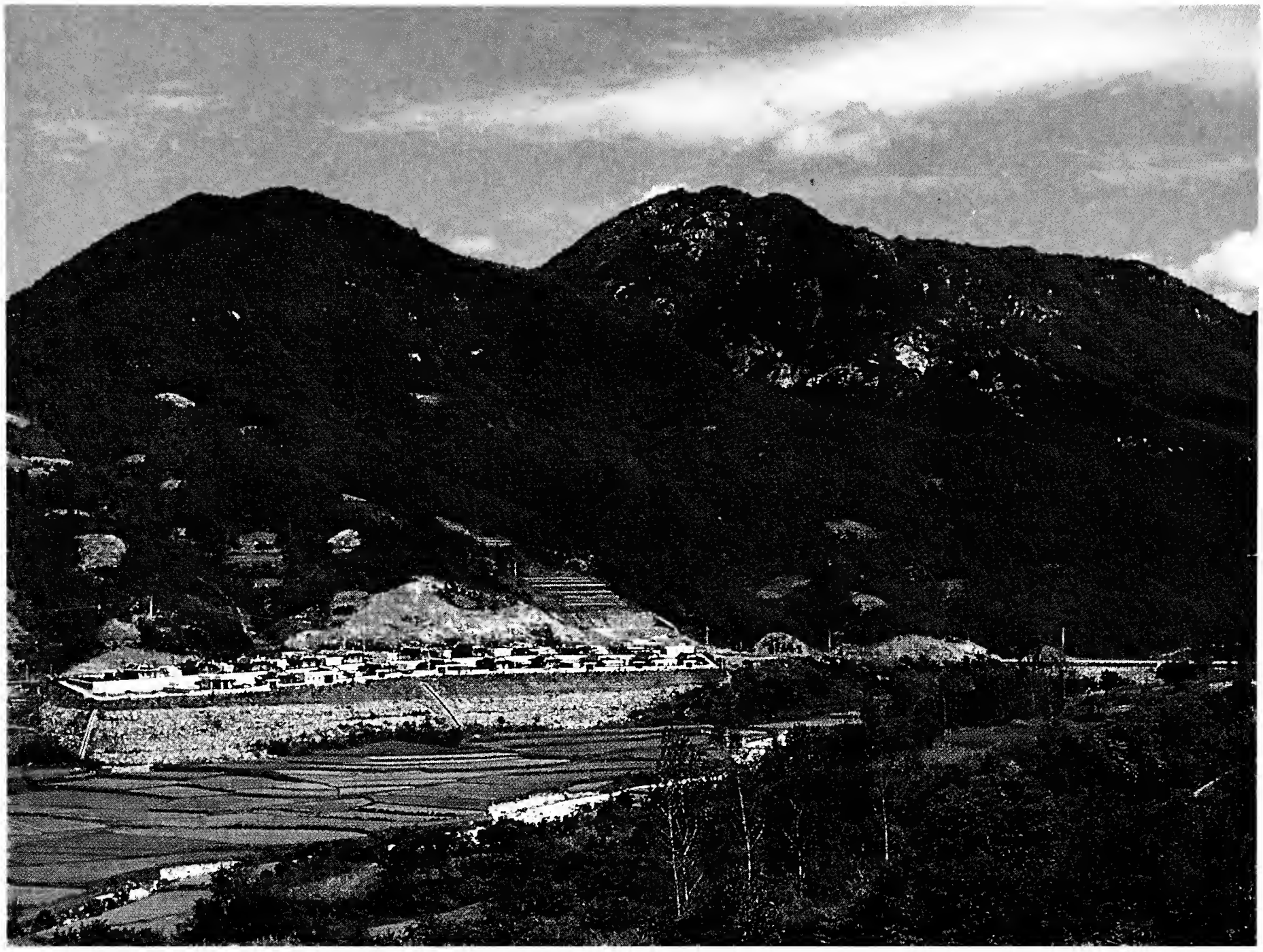

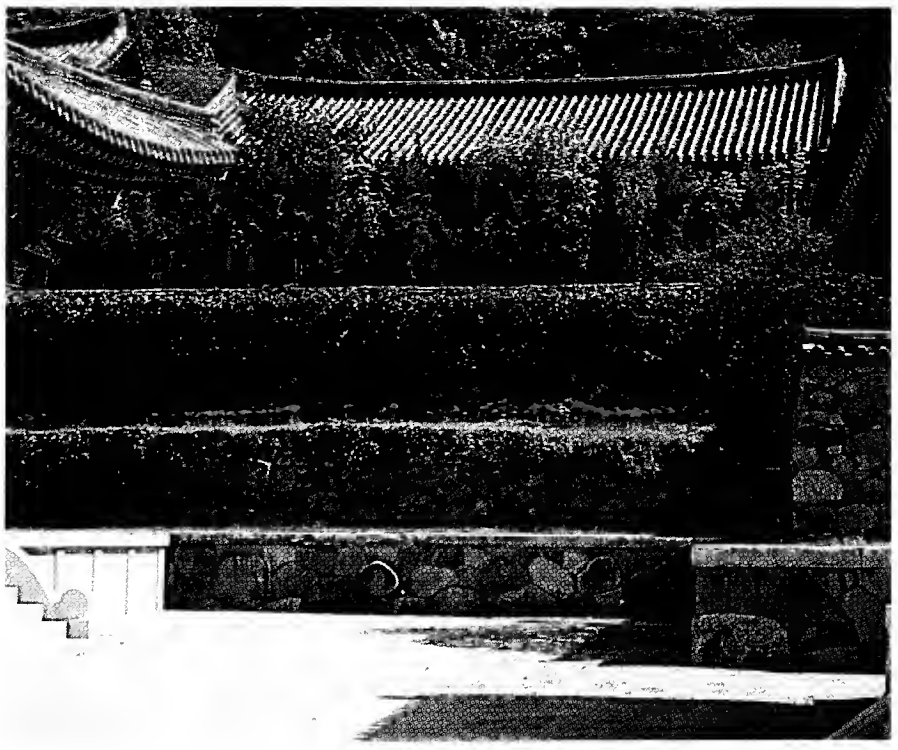

Top: A land use planner's dream—clustered housing, arable land filled with crops, mountains left to wilderness. New Korean settlements follow ancient patterns. **Upper left:** Temple grounds are stark and architectural with only a few plants used for shade and screening, flower and fragrance. Once outside the enclosing walls, plant husbandry is left to nature. **Right:** Tiled roof tops rise up in sharp contrast to dense forests beyond in mountain home of Buddha's disciples.

Touring the Endless Garden

photos & text by Steven R. Lorton

Korean horticulture is characterized by a closeness to nature that distinguishes it from the more familiar Asian gardening styles.

All trees named here can be seen in the Washington Park Arboretum.

From the air, Korea looks like an old piece of green velvet, worn and wrinkled, then dropped in a heap. One after another, steep, narrow mountains rise up. Eroded rock tops every peak and ridge. Streams and rivers cut deep into these irregular mountains, exposing more stone. The incessant work of nature, even more ancient and perservering than the Korean civilization itself, has sculpted the land until it is an intricate maze of light and shadow, wind tunnel and wind screen, microclimate after microclimate. In winter, the folds of land fill up with insulating snow. In summer, the folds trap moisture and puffs of cool air. In all, it is an enfolding environment, protecting inhabitants, plants, and creatures from cold, sun, and storm.

As you cross over Korea's shoreline on the Sea of Japan, you see beneath you a country of vast wilderness. But landforms and the country's population distribution conceal the truth: South Korea, with only 38,025 square miles, is the world's twenty-third most populous nation. It contained roughly 43 million people in 1990—1,127 humans per square mile.

Though the immense cities of Korea belong to the people, the wilderness—and there is much of it—belongs to *Cornus kousa*, the delicate dogwood of early summer; the sculptural black branches of *Cercis chinensis* with its rosy cloud of spring flowers; *Stewartia pseudocamellia*, as beautiful for its bark as for its form, flower, and foliage; the handsome dark green branches and bristly purple cones of *Abies koreana*; the popular *Rhododendron mucronulatum*, famous for its early spring explosion in pink; and thousands of other species of enormous garden worthiness for the Northwest gardener.

To see the endless garden, one has only to go off into the country and walk. Sorak-san, on the shore, northeast of Seoul, is one of the mountains regarded with almost religious reverence. Here you make your way up twisting trails, often under a canopy of contorted pines, and look out on a rich understory that blooms and greens, then colors and goes naked with the peninsula's distinct seasons.

But Korea's full horticultural treasure trove, frequently seen in Western gardens, is seldom seen in Korean gardens. In Korea it is left to the mountains. There is a naturalism to Korean gardening that sets it apart from other Asian cultures, for at the heart of Korean culture is an intense love of nature—not compartmentalized as in Japan or over-civilized as in China. Koreans create gardens but not in the deeply stylized way of their neighbors on both sides. This style has been misunderstood, perhaps taken for a lack of sophistication when viewed by outsiders.

To understand the Korean gardening style, one must understand the ancient spiritualism that drives the culture. As Chinese gardens were influenced by Confucianism and Japanese by Zen, Korean gardens seem driven by Shamanism. Christianity, Confucianism, and Buddhism flourish in Korea, but under it all is a worship of nature that never seems in conflict with other philosophies.

Even today you need not go far to witness this reverence toward the natural world. As with other temples all over the country, at the temple of Popju-sa deep inside the peninsula, great bonfires are built to celebrate certain dates on the lunar cycle. Drums are beaten, dancers emerge and circle around, chants echo through the night. As one Westerner put it, "When you witness these people dancing about in antlered headdresses, it's nearly impossible to think of them pruning a tree or clipping a bonsai."

Today Korea is a modern country. Seoul has splashing fountains, great plazas at the bases of skyscrapers, and wide, richly planted boulevards. There are gardens that copy the Japanese style and gardens that emulate the Chinese. But no modern horticultural manifestation of Korea's success seems to blur the nation's primary relationships with nature.

To see this best, visit some venerable temples in the countryside. Starting in Kyong-ju, the ancient

Silla Dynasty capital on the east coast, north of Pusan, there is a wonderful temple, Pulguk-Sa, built in the eighth century A.D. What is striking about this is that the temple grounds are nearly barren. Here and there a single tree punctuates wide expanses of crushed rock, out of which rise intricate buildings, some massive, some tiny. Beyond the great rectangle of exterior wall that surrounds the inner temple is a grove of *Pinus densiflora*, and beyond that an open park of old trees (reminiscent of the Tuileries around the Louvre), and beyond that, forest.

Changdok Palace in Seoul (built about the time Columbus landed in America) offers another example of this style. Visitors pass through a massive and venerable gate and walk on crushed rock paths. Beyond the paths, lawn (cut by hand until recently) stretches out with huge trees above. Take away the architecture and you could mistake it for an English landscape garden. At any of several architecturally important spots, you will see a large pot with a tree in it or a cluster or line of shrubs or small trees. But the look is one of wilderness making a gentle and polite merger with the civilized world.

But, as if the Korean kings who lived in this palace could not stand what they had done, at the very center of the palace ground is a BiWon, or Secret Garden. To reach this garden, you walk through the gate in a wall that surrounds several acres. The wall is the same style as those that encompass country villages. Inside, members of the court relaxed in simple farm buildings settled into wilderness. When court life became oppressive, courtiers fled to the BiWon.

Resurgence of Green

The Lombardy poplar (*Populus nigra* 'Italica') is a poignant example of the Korean love of nature and the resilient Korean spirit. This rambunctious grower, freely suckering but not long lived and of little value for its timber, would seem of no use to a small, overcrowded nation. Yet these trees are ubiquitous, flanking the roads, stretching up in villages, crowning rises on cleared lands. And why?

The Korean War ravaged the country. Wherever people lived, the armies marched, and wherever the armies marched they left charred land in their wake. What few trees survived were cut down for firewood to carry people through the bitter winters. With no transportation for hauling lumber and the fear of straying too far from home during war, the unpopulated mountains were, in large part, left untouched. But populated areas were stripped. In the early spring following the end of the war, Koreans passed bundles to one another of 2-foot-long Lombardy poplar switches. They cut the switches sharp on the down end and pushed them into the ground. Many rooted and began to grow. Each spring more poplar cuttings were pushed into the ground. The poplars grew and, by the 1960s, Korean villages, towns, and cities began to look green again.

Some of those poplars are gigantic now. And some of them, with their gnarled trunks and dense thatch of upright branches, stand not far from the temples where crushed rock gives way to open groves of trees that merge into forests. These old, towering poplars are symbols of nature's triumph over the madness of civilization. And on certain nights in the lunar cycle, shamans dance around them.

Steven R. Lorton, Northwest Bureau Chief of *Sunset Magazine*, lived in Korea for one year and has visited there six times. Steven is a member of *The Washington Park Arboretum Bulletin* editorial board.

Lurid Purple Giants

by Barry R. Yinger

illustrated on the cover

Plantsperson Barry Yinger, who has collected in Japan and Korea for 20 years, has introduced a species of Angelica *that adds a bold note of purple to the late summer garden.*

Very few plants in our gardens are unique, so it is an event worth noting when a jaded, well-travelled horticultural busybody happens upon such a treasure. It was my good fortune to have such an experience in sighting *Angelica gigas* 12 years ago. After a few years of quiet obscurity in my Pennsylvania garden, it rocketed to cult-plant status and now, like Elvis, is routinely sighted in discount stores and supermarkets throughout the land.

I am a little nostalgic for those heady days when, accosted by horticultural storm troopers demanding, "Yes, but do *you* grow *Angelica gigas*?" I could answer that I not only grow it to perfection but escorted it here from the planet Zork. Actually, it was Korea, but you have to exaggerate with some people to make your point, and if you have seen the plant in bloom you will agree that a distant galaxy is not an unreasonable provenance.

It is surprising that such a strange-looking plant should be achieving wide popularity among mainstream gardeners. It is a stop-in-your-tracks kind of plant; it had that effect on me at first sight, and each year when it blooms I am astonished by its otherworldly beauty.

Angelica gigas is an herbaceous perennial in a genus noted for its herbal, medicinal, and mystical associations. The genus name acknowledges its unearthly association with angels. *Angelica* was long thought to offer protection against witches; I must leave you to decide if that is still a useful quality in your garden. The specific name commemorates the sons of Terra who stormed the heavens but were slain by Jove's lightning. Anyway, they were big fellows (as in gigantic) and so is their namesake plant. As for pronunciation of the species name, that will depend on whether you choose Reformed Academic or Traditional English Latin pronunciation (no, I am not making this up). Reformed Academics use the hard "g," as in "go," and the "i," as in "machine." Traditional English Latin pronunciation uses a soft "g" as in "gem," and "i," as in "ice" (similar to "giant"). So take your pick, and reflect on how science answers our questions by giving us more choices than we thought we had, or want.

Like other angelicas, *Angelica gigas* is a tall growing, coarsely textured plant with handsome, deeply cut foliage and thick, scape-like flower stalks rising well above the foliage, bearing flat to slightly domed clusters of many tiny flowers. This species differs most obviously in the unusual coloration of the inflorescence as the upper part of the stalk, the flower cluster, and the puffy, leafy bracts that part to reveal the flowers are all colored rich purple. Besides the startling coloration of the flowers, the bloom sequence is a dramatic—even erotic—performance as the voluptuous bracts slowly swell, split, and unfold to reveal the almost black-purple heads of flowers.

The clusters of flowers are also intoxicatingly attractive to flies, wasps, yellow jackets, and hornets. It is a remarkable sight to see a cluster of iridescent bluebottle flies or brightly contrasting yellow jackets pulsating atop a purple dome of flowers. To some this would represent the butterfly bush from hell, but insightful gardeners will see it as an opportunity to compose sophisticated cross-phylla color combinations in the garden. Instead of yellow jackets, I would personally prefer cheetahs crouching among my angelicas, and incidentally reducing the deer problem, but zoning laws make this approach difficult. Yellow jackets are better than nothing.

Glossary

Bract is a leaf-like or petal-like organ beneath the true flower of a plant.

Genus is a category of plants that have traits in common with each other but may differ in lesser characteristics.

Inflorescence is a plant's flower cluster.

Scape is a naked flower stalk.

Species is a group of plants composed of similar individuals.

It is strange that a plant as obvious as *Angelica gigas* should have escaped the attention of gardeners for such a long time. Although it is not common in the wild, largely because of over-collecting for traditional Chinese medicine, it is found over an extensive range, including Korea, Manchuria, and the Kyushu and Shikoku islands in Japan. The site where I first saw the plant, Odae Mountain in northeastern Korea, has been botanized by several plant explorers, including Ernest Wilson in 1917. Wilson must have been in the area while it was blooming, as he reports seeing *Hanabusaya asiatica* in flower. It and the angelica grow in the same area and flower at the same time.

My encounter with *Angelica gigas* came in August 1981 as the climax of a climb up Odae that started as a day trip and lasted three days. I was hosting a Japanese friend, Dr. Toshio Ando, on his first trip to Korea just before I returned to the United States after a two-year stay on Korea's west coast. Toshio and I were accompanied by a Korean friend, Mr. Young June Chang, who was in transition from the Korean army to Seoul National University. We took a bus from Seoul to Odae as part of a fast horticultural sightseeing tour.

On previous visits in the spring and fall, I had been impressed by Odae's rich flora. Odae is one of the few areas in Korea that is in almost pristine original condition because of protection afforded by the proximity of a number of Buddhist temples. We enjoyed the wonderful diversity of birch and maple species as we climbed the winding, unpaved road. By the time we reached the top, we were all astonished by the richness of the herbaceous flora, as well, and decided against descending directly to the bus. Instead we struck off on a series of rough trails connecting various peaks noted on Korean army maps that Young June had thoughtfully provided.

We knew that camping was prohibited on Odae, but as we had no camping gear, we were technically innocent, and, in any case, we were comforted by our knowledge of the all-forgiving nature of Buddha. After a very cold night on and under willow branches beside a stream, we encountered the most interesting floristic habitat of the trip, a sort of subalpine meadow. This grassy, open area was surrounded by forests of *Quercus mongolica*, several birch and maple species, and *Magnolia sieboldii*. The open areas must have been cleared by fire, probably from lightning strikes in summer. The diversity of the herbaceous flora was astonishing: Species of *Patrinia* were massed in chrome yellow and white. *Cimicifuga* species provided spikes and billowing racemes of tiny, fussy white flowers. At least five species of *Adenophora* displayed carillons of blue or purple bells, contrasting with the orange pinwheel blossoms of *Lychnis*. Scrambling through and over them were the lax stems of several species of monkshood (*Aconitum*) with intricately formed flowers in shades of rich purple, blue, and creamy white, plus a startling blue and white bicolored variety. Honors for elegance were taken by *Hanabusaya asiatica*, a Korean endemic with long, fluted translucent bells of palest blue. Weaving it all together were the twining herbaceous stems of three species of *Codonopsis* with strangely inflated buds opening to become nodding flesh-tinted flowers. Here and there groundcover colonies of *Melampyrum setaceum* var. *nakaianum* lay like a vulgar claret carpet.

As my plant-appreciation circuits approached overload, I encountered my first specimen of *Angelica gigas* towering above the splendid chaos all around it. For a moment I was stunned, then suspicious. Not long before, in Japan, Toshio and I had discovered a patch of angelica with flowers of shocking fluorescent orange. After wasting a lot of film and emotional energy, we realized that someone on a surveying crew had neatly spray-painted each inflorescence with orange marking paint. Could the mysterious angelica painter have followed us to Korea with purple paint? Fortunately, we found the mystery plant in the *Illustrated Flora of Korea*. With the sad knowledge that the mercy of Buddha does not encompass those who dig rare plants near his temples, we finally moved on, but I was determined to someday try to grow this outlandish perennial.

In October, Young June returned to Odae and collected a few seeds of the angelica and sent them to me in the United States. Much to my surprise, they grew easily into husky plants and flowered in 1983 in my mid-USDA zone 6 Pennsylvania garden. Subsequent introductions of seed were made to the United States National Arboretum in the mid-1980s, and through the energetic promotion of Holly Shimizu, then curator of the National Herb Garden, became widely distributed.

For a rare plant that grows at high altitude in a cold-temperate climate, *Angelica gigas* is remarkably amenable to cultivation. I have seen it thriv-

ing in gardens from USDA hardiness zones 5 to 8 (the Puget Sound region encompasses zones 7 and 8). It performs best for me in rich acid soil that never gets very dry, and although it will tolerate sun, looks best in partial shade or at least where protected from the afternoon sun. Plants with yellow-green foliage and dumpy growth are usually in too sunny a spot.

Under favorable conditions, this angelica can easily top six feet in bloom the second year from seed. Plants often die after flowering, but I have had plants live up to four years. It is very easy from seed, providing the seed is fresh and not covered too deeply. I believe that light is needed for germination. My garden has had a modest amount of self-sowing but in ten years no sign yet of horticultural imperialism. The fact that many plants self-destruct after bloom makes the self-sown seedlings welcome.

There are many wonderful combinations that can be assembled using this angelica and other perennials. It is very effective as an exclamation point among masses of August and September blooming flowers. A successful combination in my garden is a mass planting of purple coneflower (*Echinacea purpurea*) and late soft orange daylilies dotted with *Angelica gigas*, backed by the grass, *Miscanthus sinensis* 'Gracillimus'. The rays of the coneflower complement the angelica, while the soft orange daylilies effectively contrast with the purple shades, yet complement the hint of orange in the central ''cones'' of the coneflower. For impressive architecture and exciting color accent there are few perennials more effective than this lurid but gentle giant.

Barry Yinger is New Products Resources Manager for Hines Nurseries, Inc., Vacaville, California. He lives and gardens in southeastern Pennsylvania, on the farm where he was born. Yinger specializes in Asian plants and their various cultivated forms, with a special love for those deemed landscape-value–challenged.

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Lee, Chang-bok. *Illustrated Flora of Korea (in Korean)*. Korea: HMS, 1982.

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Heronswood Nursery, Ltd., 7530 288th St. NE, Kingston, WA 98346. Not a mail-order item in 1994, but available during the summer at the nursery.

Holbrook Farm, PO Box 368, Fletcher, NC 28732.

Wayside Gardens, Hodges, SC 29695-0001.

White Flower Farms, Litchfield, CN 06759-0050.

Brian O. Mulligan

A Korean fir (*Abies koreana*) on the bank facing the north entrance to the Japanese Garden, Washington Park Arboretum.

Korean Trees & Shrubs—Highlights in the Washington Park Arboretum

by Brian O. Mulligan

The Washington Park Arboretum has on display a number of woody plants from Korea. Some highlights are discussed below. Ten Korean trees are on the "Tour of Korean Trees" on page 14.

Conifers

Korea has representatives of half a dozen different genera of conifers in the Washington Park Arboretum, including several true firs (*Abies koreana* and *A. holophylla*). *Abies koreana* is a useful species for small gardens since it bears purplish cones when young and does not get very large compared with most true firs here. A tall spruce, *Picea koyamae*, now 45 to 50 feet tall, was obtained in the form of scions in 1958 from the Morton Arboretum near Chicago; it has coned for several years. The Korean pine, *Pinus koraiensis*, lived for more than 50 years in the Pinetum south of East Lynn Street but died in 1993; it has been replaced by others elsewhere. The Japanese red pine, *P. densiflora*, which like many other woody plants is also found in Korea, is well represented by the old tree at the top of the first hill south of the offices on Arboretum Drive East.

Two Korean species of arbor-vitae, *Thuja koraiensis* and *T. orientalis*, are doing well. The former, received from the United States Department of Agriculture in 1969, raised from wild-collected seeds, is in the Conifer Meadow just north of East Lynn Street; the latter, of Chinese origin, forms a group between Azalea Way and Lake Washington Boulevard, almost opposite the lower end of the Woodland Garden. In Conifer Meadow there is also a single tree of a larch (*Larix gmelinii*), raised from seeds collected in Korea and distributed by the National Arboretum in 1970. Although technically not one of the Arboretum trees, *Juniperus rigida* may be included here, since plants are growing on the bank just inside the Madison Street entrance, having been placed there in 1955 and 1956. The needles are so spiny that this species is best in an arboretum and not in a private garden.

Broad-leaved Evergreen Trees

Two Korean evergreens are of interest in the Arboretum. *Daphniphyllum macropodum*, a handsome, large bushy shrub or eventually a tree, has thick, glossy leaves on red petioles resembling those of one of the larger species of *Rhododendron* such as *R. sutchuenense*. In flower, however, they are totally different, since those of the *Daphniphyllum* are small, borne in tight clusters at the ends of the branches, and consist of either male stamens or female pistils, without petals to attract insects; some pollination must take place between individual plants to produce fruits on the female plant. These, if formed, are blue-purple in color and quite attractive.

More tree-like in habit than *Daphniphyllum macropodum* is *Trochodendron aralioides*, a monotypic species from both Japan and Korea. Examples of it have been with us since 1950, raised from seeds received from the Royal Botanic Gardens at Kew, Great Britain, then planted on

Glossary

Genus is a category of plants, subordinate to family, that have traits in common with another plant but may differ in lesser characteristics.

Monotypic genera have only one species.

Petiole is a leaf stalk.

Pinnate leaves are on each side of a common axis, arranged like a feather.

Pistil is the female organ of a flower.

Scion is a small portion of a plant used in vegetative propagation.

Species is a group of plants composed of similar individuals.

Stamen is the male organ of a flowering plant, containing pollen.

the bank just south of Woodland Garden, facing north, a condition that they seem to have enjoyed, being still there. It is evidently somewhat hardier than the *Daphniphyllum*, which can suffer in colder weather than normal. The clusters of green flowers come in June, and the brownish-red fruits, which can follow in fall, are inconspicuous. However, the tiered branching habit and the terminal whorls of ovate, leathery leaves are certainly distinct and unusual for evergreens here. There are also fine examples of *Trochodendron* in the Japanese Garden, at the northwest corner.

Deciduous Trees

At least two species of maples (*Acer*) can be found in the Asiatic maple collection located down the hill and to the west of the magnolias. These are *A. pseudosieboldianum* and *A. tegmentosum*. The former is a small tree related to and resembling *A. palmatum*, which also occurs in Korea, noted and valued especially for its scarlet or orange-red fall leaf coloring. We have plants raised from two sources in the former USSR, and another from seeds collected by the late Joseph A. Witt in Korea in 1982, which is planted on the bank on the east side of Azalea Way at the lower end of Loderi Valley.

Acer tegmentosum has been with us since 1938, received from the USDA and raised from seeds collected in Manchuria. Coming from this region of Asia it should be a very hardy species, and in fact it is rated for zone 4 in Rehder's *Manual* (1940). Our plant remained in the nursery for many years, and, being a female tree, seeds were obtained from it by artificial pollination to produce another generation. A second introduction, in the form of scions from the Arnold Arboretum in 1949, provided the male tree. The oldest plant grows along Arboretum Drive East just north of Rhododendron Glen. This species is undoubtedly the best of the striped-bark maples because of abundant, vividly contrasting white vertical lines on the trunk and branches. It should be widely grown for that fact as well as the handsome large leaves that turn yellow before falling in October. It also comes into leaf before its relatives (e.g., *A. davidii* or *A. grosseri* var. *hersii*).

Albizia julibrissin var. *rosea*, the silk tree, is a valuable August-flowering tree here, but since it can reach 40 to 45 feet in height within a few years, it is hardly suitable for most city gardens and is better suited to a park. When in flower it forms a mass of cloudy pink blossoms and is quite spectacular. We received young plants from the Arnold Arboretum, Jamaica Plain, Massachusetts, in both 1948 and 1949; Arnold Arboretum introduced it from Korea in 1918, as Dr. Donald Wyman informs us in his *Trees for American Gardens*, revised edition (1965).

Cornus kousa, the so-called Japanese dogwood, is native also to Korea and China. It is probably the most useful dual-purpose large shrub or small tree available for this area. The habit of growth with its layered branches, quantities of 2- to 3-inch-wide white flowers in June, the probability of raspberry-like red succulent fruits in September, then orange-red fall leaf color in October and November, make it a most valuable specimen for our gardens. Plants have been in the Arboretum since 1937 and 1941, received from two private sources in Seattle. The superior form of var. *chinensis* 'Milky Way' has been cultivated here since 1963.

At least four deciduous oaks (*Quercus*) native in Korea grow in the Arboretum, including *Q. aliena*, *Q. acutissima*, *Q. dentata* (the Daimyo oak of Japan), and *Q. glandulifera*. Of these, *Q. acutissima*, the sawtooth oak, is perhaps the most attractive with its glossy green bristle-toothed leaves resembling those of some species of true chestnut; in fall they turn pale yellow. Three mature trees can be seen in the angle between Lake Washington Boulevard East and the Foster Island road, where they were planted in April 1953.

The leaves of the Daimyo oak are entirely different, being obovate in shape like those of the American white oak, *Quercus alba*, with several pairs of lobes, but exceptionally large, up to 10 or 12 inches long and half as wide. In October they turn tan-brown and are very evident when they

Brian O. Mulligan

The flowers of *Symplocus paniculata* bloom in late spring at the Washington Park Arboretum.

fall. Our trees were raised from seeds received from the Arnold Arboretum and planted in the north portion of the oak section in 1946. Eight trees are still there and form an impressive group. A park or boulevard is the best location for such large trees.

Two species of mountain ash (*Sorbus*), both found in Korea, are in the collection on the east side of Arboretum Drive East. One, *S. commixta*, possesses the typical pinnate leaves of most species of this genus; the other, *S. alnifolia*, does not. Of the former, we have many examples from seeds obtained from different sources in past years, from 1951 onwards. At first they were planted in the area allotted to the family Rosaceae along Lake Washington Boulevard East between East Roanoke and East Miller streets; later they were removed to their present site when the Washington State Highway Department required that land for the new bridge approaches.

Sorbus commixta makes a small tree, 30 to 45 feet tall, sometimes narrow and upright, others more spreading and bushy in habit. Most of them fruit regularly and heavily, bearing bunches of bright red fruits most evident in October before birds take them. One of our accessions (94-55) came from seeds received from Kyoto, Japan; all the others came from cultivated sources. The variety *sachalinensis* has larger leaves than the type. Many of them also color well in fall, to different red shades, which is an asset.

With its birch-like leaves, *Sorbus alnifolia* does not look like a normal mountain ash, unless it is seen in flower or fruit, particularly the latter in October and November when there may be clusters of pinkish fruits (individually these are small). At flowering time in May, it then resembles some kind of hawthorn (*Crataegus*), since the flowers are produced in quite compact clusters and are white. The chief assets of this species are its hardiness, compact habit, and red-brown fall leaf color, which is then very evident and decorative. It would make a good street tree, since the fruits are small and not soft and juicy like those of the common mountain ash, *S. aucuparia*. We have had this species in the collection since 1951, raised from seeds from the Royal Botanic Gardens, Kew.

The genus *Stewartia* contains some excellent large shrubs or small trees for Puget Sound gardens. One of the best is *S. pseudocamellia*, native of both Japan and Korea. The Korean plant has been called var. *koreana*, but Dr. S. A. Spongberg of the Arnold Arboretum does not consider it sufficiently different from the Japanese type to deserve that rank. Two young plants were placed in the Camellia Collection in 1953 (since *Stewartia* belongs to the same family as *Camellia*) and are now small trees 40 to 45 feet in height, flowering freely in late June to early July. They also are very noticeable in fall for their tan-brown leaf color and in the winter months for the smooth gray bark periodically flaking off their trunks. The five-petalled white flowers are about three inches across and open successively.

Brian O. Mulligan is director emeritus of the Washington Park Arboretum.

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Korean Plants in the Washington Park Arboretum: Principal Sources

by Brian O. Mulligan

A fair representation of Korean woody plants can be found in the Washington Park Arboretum, but at the same time there are gaps to be filled and further introductions of plants now poorly represented would be desirable. Introductions come from several sources: directly from Korea, from other Asian countries that grow the same species, from plant explorers, and through collections in the United States.

April 1968. USDA, Plant Introduction Station, Glenn Dale, Maryland. Plants of 20 species of various genera, including *Betula*, *Celtis*, *Lonicera*, *Magnolia*, *Pyrus*, *Rosa*, and *Rhododendron*. Many of these were established and set out in the Arboretum, including *Betula costata*, *Lonicera insularis*, *Magnolia sieboldii*, and *Pyrus fauriei*.

May 1981. C. Ferris Miller, Chollipo Arboretum, Korea. Seeds of eight species of trees or shrubs (native).

March 1982. Chollipo Arboretum, Korea. Plants of 12 species of native woody plants, totaling 19 plants. Only about five of these now survive (1993), including the evergreen oak, *Quercus stenophylla*.

October 1982. Seeds of 46 kinds of plants brought back by J. A. Witt, then curator at the Arboretum, following a visit with a group to Korea. Surviving are plants of *Acer pseudosieboldianum*; *Carpinus tschonoskii*; species of *Lindera*, *Malus* (crab apple), *Rosa*, *Syringa* (lilac); and *Torreya nucifera*, with some others. Cuttings of *Salix* (willow) and *Daphne* species apparently did not survive. Some of these introductions were from wild seeds, others from cultivated plants. All are documented in the office files.

May 1983. Chollipo Arboretum, Korea. Seeds received of eight species of native trees or shrubs. There is no record of any of these being planted later in the Arboretum.

March 1985. US National Arboretum, Washington, DC. Plants (1-4 of each) raised from seeds or cuttings collected in Korea, totaling 46 in all. Survivors include plants of *Callicarpa* (beautyberry), *Grewia*, *Lindera*, *Pinus*, *Pyrus fauriei*, *Styrax*, and *Ulmus parvifolia*.

March 1986. Dr. J. C. Raulston, North Carolina State University, Raleigh, N.C. Seeds of 18 kinds of plants from collections in Korea, sent to the University of Washington Botany Department greenhouses, were raised there and transferred to the Arboretum in December 1986. These include species of *Aphananthe*, *Carpinus*, *Celtis*, *Gleditsia*, *Fraxinus*, *Philadelphus*, and *Weigela*.

The Arboretum's Korean Plant List

prepared by Brian O. Mulligan

Conifers

†*Abies holophylla*
koreana
nephrolepis
Juniperus rigida
Larix gmelinii
Picea koyamae
Pinus densiflora
†*koraiensis*
thunbergii
†*Thuja koraiensis*
orientalis
†*Torreya nucifera*

Broad-leaved Evergreen Trees

†*Actinodaphne lancifolia*
Castanopsis cuspidata
Cinnamomum japonicum
Daphniphyllum macropodum
Neolitsea sericea
†*Quercus acuta*
†*stenophylla*
Trochodendron aralioides

Deciduous Trees & Shrubs

Acer barbinerve
mandschuricum
mono
palmatum var. *palmatum*
†*pseudosieboldianum*
†*takesimense*
tegmentosum
triflorum
†*Alangium platanifolium* var. *macrophyllum*
Albizia julibrissin var. *rosea*
Alnus japonica
Amelanchier asiatica
†*Betula chinensis*
†*costata*
davurica
platyphylla
Carpinus coreana
†*turczaninovii*
Celtis biondii var. *heterophylla*
†*choseniana*
sinensis
Clerodendrum trichotomum
†*Cornus coreana*
kousa
Euodia danielii
Euonymus bungeanua
†*Fraxinus longicuspis*
rhynchophylla
†*Hovenia dulcis* var. *koreana*
Ilex macropoda
Kalopanax septemlobus (= *K. pictus*)
Koelreuteria paniculata
Phellodendron sachalinense
Photinia villosa
Picrasma quassioides
Populus cathayana
koreana
Prunus maackii
padus
†*Quercus acutissima*
aliena
dentata
†*glandulifera*
†*Rhamnella franguloides*
Rhus sylvestris
Sophora japonica
Sorbus alnifolia
commixta
japonica
Stewartia pseudocamellia var. *koreana*
Tilia amurensis
Ulmus parvifolia

Evergreen Shrubs

Aucuba japonica
Camellia japonica
Cleyera japonica
Elaeagnus macrophylla
Euonymus japonicus
Eurya japonica
Ilex crenata var. *mutchagara*
†× *wandoensis*
Illicium anisatum
Ledum palustre var. *diversifolium*
Ligustrum japonicum
lucidum

Other Shrubs

Abeliophyllum distichum
Aralia elata
Berberis koreana
†*Callicarpa dichotoma*
Forsythia ovata
viridissima var. *koreana*
†*Grewia biloba* var. *parviflora*
Hydrangea serrata
†*Lindera erythrocarpa*
glauca
†*obtusiloba*
Lonicera insularis
†*Magnolia sieboldii*
Morus australis (M. bombycis)
Philadelphus tenuifolius
Poncirus trifoliata
†*Pyrus fauriei*
Rhododendron micranthum
schlippenbachii
yedoense var. *poukhanense*
†*Rosa multiflora*
wichuraiana
Salix gilgiana
gracilistyla
†*Sambucus williamsii*
Spiraea trichocarpa
Stephanandra incisa
Symplocos chinensis var. *leucocarpa* f. *pilosa*
paniculata
†*Syringa oblata* var. *dilatata*
patula
wolfii
Vaccinium japonicum
oldhamii
Viburnum bitchiuense
carlesii
dilatatum
foetens
sargentii var. *calvescens*
†*Vitex rotundifolia*
Wikstroemia trichotoma
Zanthoxylum piperitum
schinifolium

Vines or Climbing Plants

†*Actinidia arguta*
kolomikta
Akebia quinata
†*Ampelopsis*
brevipedunculata var. *maximowiczii*
Kadsura japonica
Schisandra chinensis
Smilax china
Stautonia hexaphylla
Tripterygium regelii
†*Vitis coignetiae*
flexuosa
integra

†*from seeds or plants of known wild origin*

Joy Spurr

The five-leaf *Akebia quinata*, in flower during April, at the Washington Park Arboretum. A specimen can be viewed on the fence behind the lath house.

A Tour of Korean Trees

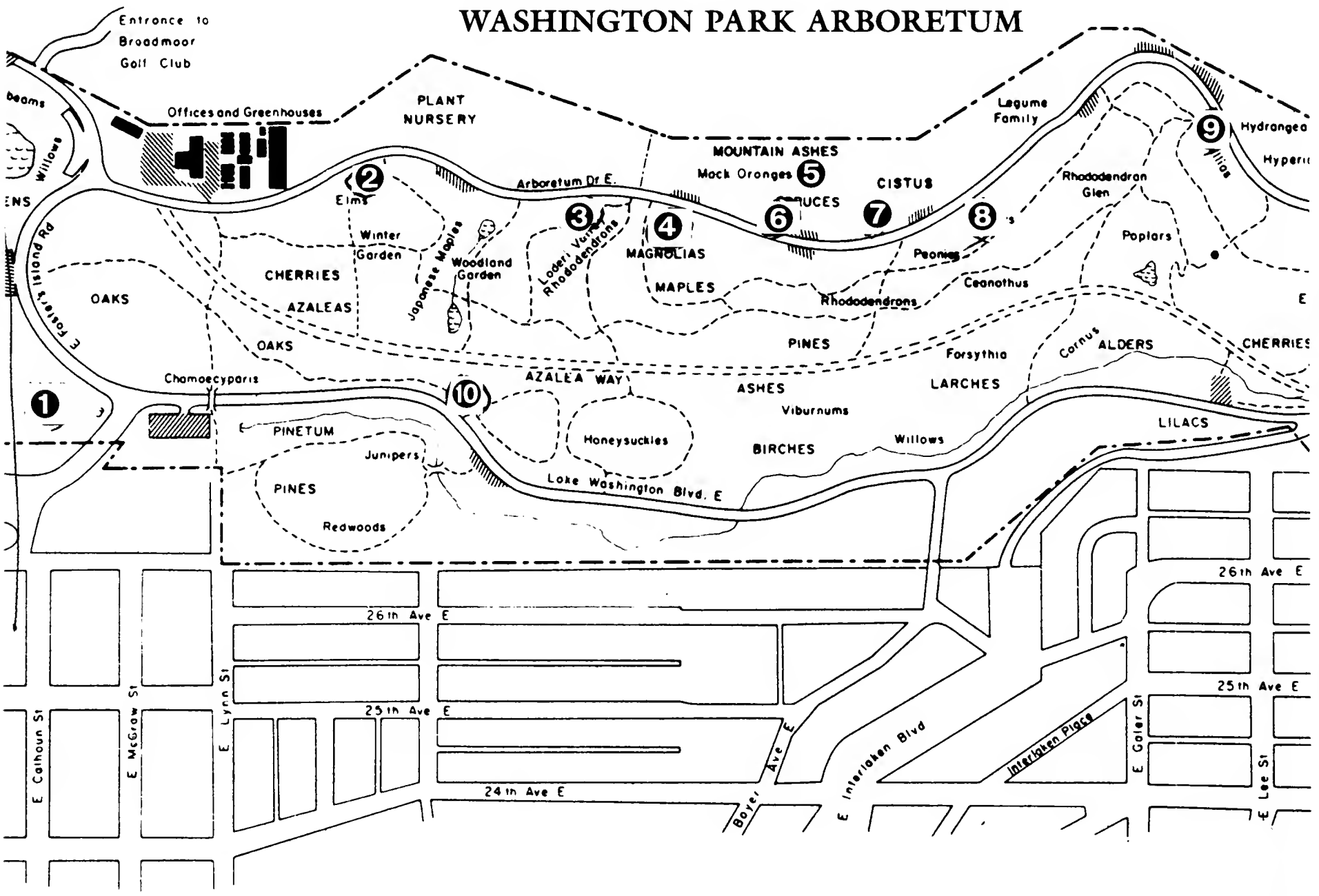
by Brian O. Mulligan

You can see 10 notable Korean trees (described or listed in the preceding articles) during a leisurely walk through the Washington Park Arboretum.

❶ *Quercus acutissima* (sawtooth oak)
❷ *Pinus densiflora* (Japanese red pine)
❸ *Trochodendron aralioides*
❹ *Magnolia sieboldii*
❺ *Picea koyamae*
❻ *Sorbus commixta*
❼ *Albizia julibrissin* var. *rosea* (silk tree)
❽ *Acer tegmentosum*
❾ *Stewartia pseudocamellia*
❿ *Thuja orientalis* (oriental arbor-vitae)

Brian O. Mulligan

May flowers of *Magnolia sieboldii* in the Arboretum.



Daniel J. Hinkley

The Magnolia House at Chollipo Arboretum, southwest of Seoul, Korea.

Arboretum on the Yellow Sea

by Timothy Hohn

All trees named here can be seen in the Washington Park Arboretum.

Covering three hundred acres of low-lying mountains, white sand beach, and an offshore island in the Yellow Sea, 70 miles southwest of Seoul, you will find the Chollipo Arboretum. Chollipo is the source of many Korean plant introductions in the United States, including the Pacific Northwest. The product of horticulturist, financial adviser, and transplanted Yankee, C. Ferris Miller, the Chollipo Arboretum contains one of the finest plant collections in the northern hemisphere and beautiful scenery as well.

Chollipo adjoins the Sosan Seaside National Park amid pine forests of *Pinus densiflora*, *P. thunbergii*, and their hybrid, *P.* x *densithunbergii*. Along with these conifers grows the unusual deciduous tree *Platycarya strobilacea*, a monotypic genus (a genus with only one species) in the walnut family, as well as *Kalopanax septemlobus*, the castor aralia tree with its exotic-looking, deciduous foliage; *Sorbus alnifolia*, a handsome, simple-leaved mountain ash; the medium-sized and compound-leaved *Euodia daniellii*; and the early-blooming pink azalea, *Rhododendron mucronulatum*, among other interesting plants.

Chollipo's topography, exposure, and soil types are quite varied and, along with the moderating seaside location, are ideal for the development of an arboretum. The climate is continental with warm, moist summers and cool, dry winters equivalent to USDA hardiness zone 8 (similar to part of the Puget Sound region). Despite the disparity in rainfall patterns, many plants from Korea have proven to be reliable and attractive landscape subjects for the Pacific Northwest.

The offshore island property is easily reached by foot during one of the extremely low tides (at over 30 feet, they are second only to those in the Bay of Fundy). The nearby dune vegetation is home to interesting horticultural finds such as *Viburnum bitchiuense*, with its pink-to-white flowers, and the sand-binding creeper, *Vitex rotundifolia*.

Chollipo has many collections of great interest to Northwest gardeners, including taxa in the Lauraceae (laurel family), such as the broad-leaved evergreen genera *Litsea* and *Neolitsea*, which grow into beautiful large shrubs or small trees. The holly collection is magnificent and has been the source of some striking plants for collections in the United States. Mr. Miller's intense interest in hollies brings him back home to this country for meetings of the Holly Society. The collection of magnolias at Chollipo, among others, is also recognized as outstanding. Collections are well cared for by over a dozen staff members.

The Chollipo Arboretum is a valued and long-standing peer of the Washington Park Arboretum for professional information exchange regarding public garden practices and for the *Index Seminum* (a yearly seed exchange among gardens). Valued plant introductions also have been made by Chollipo, such as those shared with the Arboretum by Daniel Hinkley of Heronswood Nursery, Kingston, Washington.

Timothy C. Hohn, former curator of the Washington Park Arboretum, is principal in Calyx Consulting/Design, garden design and horticultural services.

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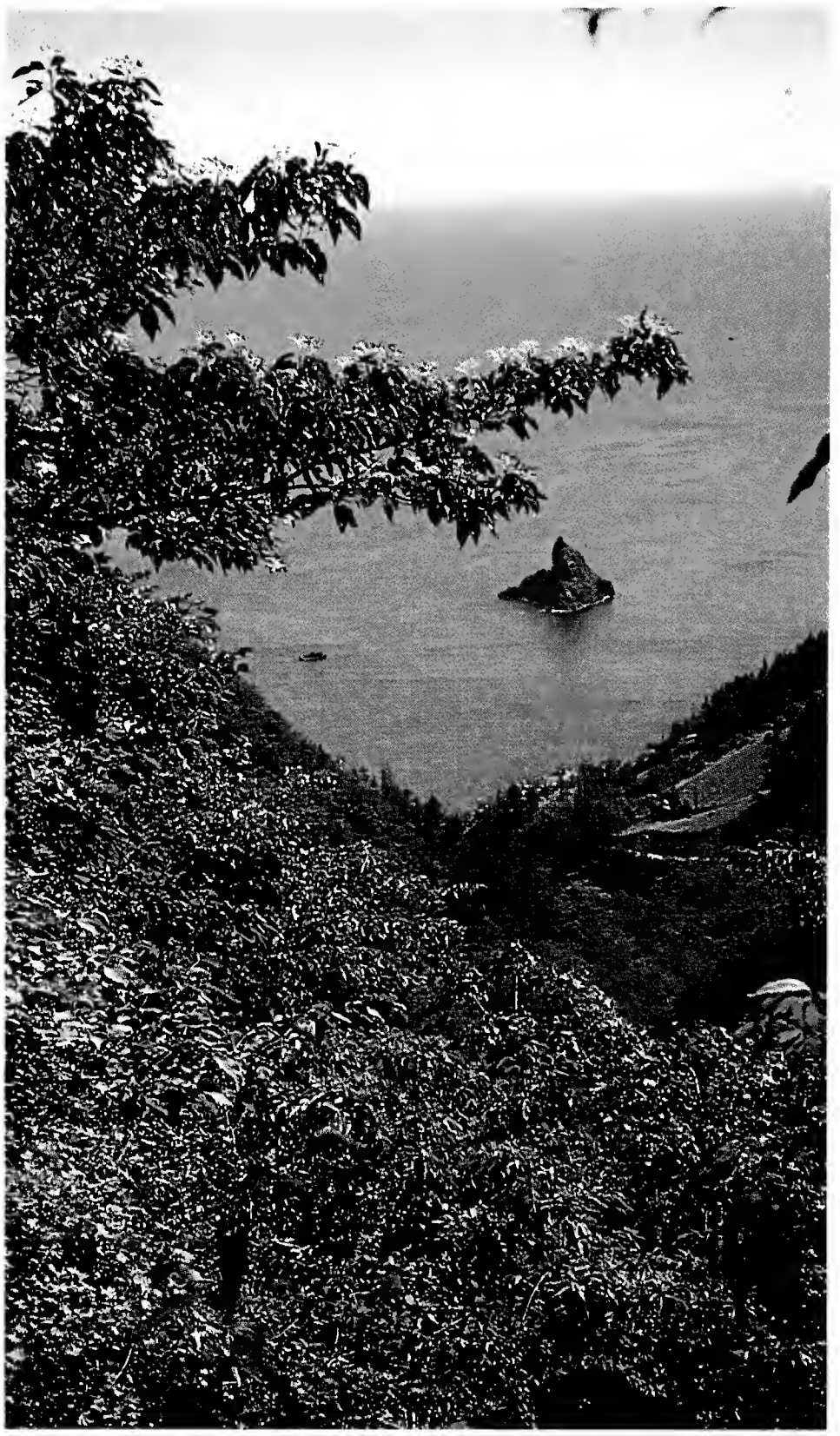
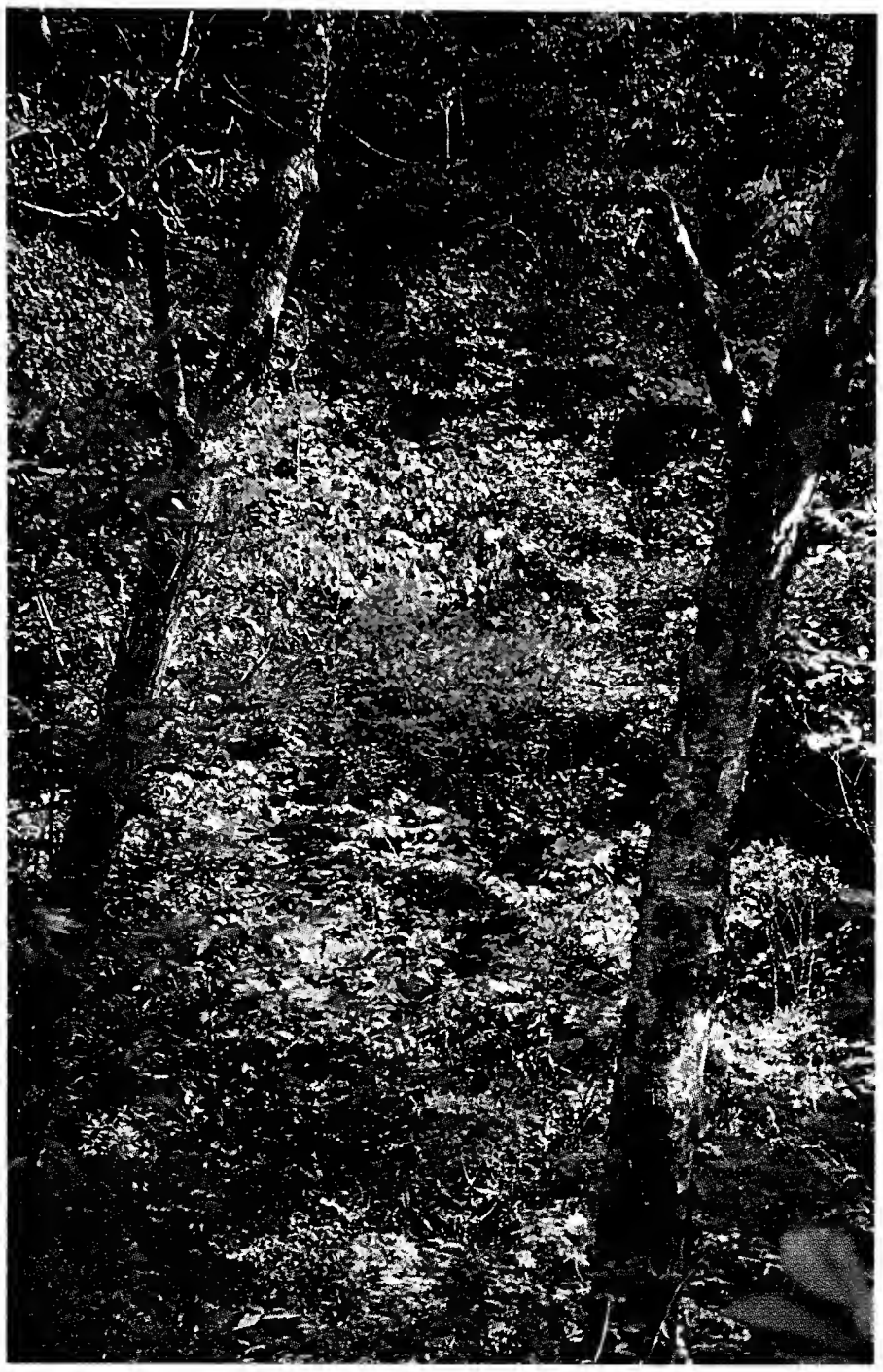
The Korean Connection to Northwest Gardens

photos & text by Daniel J. Hinkley

A Northwest horticulturist's survey during the past autumn revealed many familiar Arboretum accessions in their native Korean habitat, frequently in fall foliage and berry. This recent expedition yielded some collections that will be intriguing additions to the Northwest garden.



I awoke at first light to see from my window the granite cliffs of Sorak Mountain thrusting skyward, raked by silken, clouded curtains heavy with rain. Less than 36 hours earlier I had been preparing my garden and nursery in Washington State for the weeks of my absence. Now, with expectations tainted by a television comedy filmed in southern California, I stared into mountains that seemed too severe in beauty to be part of my limited visual repertoire of this country, Korea. The floral richness that began at the walls of our hotel and extended in verdant shag up and away was not among the mental images I had conjured in preparation for arrival. *(continued, page 18)*



Top (left to right): *Cornus macrophylla* in fruit, Ulleong-do; *Acer pseudosieboldianum* on the road to Odae; *Pinus koraiensis*, Sorak-san.

Bottom (left to right): A bowl of *Sorbus commixta* berries, in a market on Ulleong-do; *Symplocus chinensis* var. *leucocarpa* f. *pilosa* in fruit; and the beautifully barked trunk of *Stewartia pseudocamellia* var. *koreana*, in Chiri-san.

The intent of my journey was both to observe plants in their native habitats and to broaden the base of wild-collected taxa from Korea in cultivation in the Pacific Northwest. Based on recommendations by my Korean hosts, the areas I planned to visit during my survey included three mountain ranges in the Northeast; Ulleong Island in the East Sea; Taehuksan Island in the Yellow Sea; and two mountain ranges of the southern mainland. In addition, C. Ferris Miller hosted me at his remarkable private arboretum, Chollipo, on the west coast.

Korea: A Botanical Bridge

By providing a bridge between the Japanese Archipelago and western China, the Korean peninsula and adjoining islands represent a convergence of two remarkably affluent regional plant types while yielding a distinctive flora of their own. Perhaps due to the attention paid the two proximal floras, an emphasis on Korean plant life has never materialized. Despite its richness in vegetation enveloped by a diverse array of climatic conditions, there is little written on the subject. Although Lee's *Illustrated Flora of Korea* was my mainstay during this survey, much fine tuning is needed regarding range, sub-specific variation, and, on some islands, initial cataloging.

From my cache of memorable experiences during September and October 1993, I have extracted three outstanding days to share below. A fuller account of my collection data is on file at the Washington Park Arboretum and in the Elisabeth C. Miller Library at the University of Washington's Center for Urban Horticulture.

Fertile Plant Life of Kaibang-San

At 5 A.M., with a hint of rose brushing a blackened horizon, my traveling companions and I left our lodging at Sangyong to attempt a hike to the summit of Kaibang-san, the highest peak in northeastern Korea at 5125 feet. Kaibang-san is well-known among Korean botanists for its fertile congregation of plants, several of which are endemic to this mountain. Part of a range that forms the backbone of the Korean peninsula, Kaibang and the surrounding peaks date to the pre-Cambrian period more than 570 million years ago. The well-weathered topography was less craggy than the mountains of Sorak in the extreme northeast, which we had left two days earlier. What this peak lacked in total elevation, however, it made up in distance to the summit and steepness of the trail.

My traveling companions included Marina Christopher and John Coke from Green Farm Plants in Hampshire, considered one of the best specialty nurseries in England; John D'Arcy, an amateur botanist from Wiltshire who is well-seasoned in botanical collections; and James Compton of the University of Reading, who is presently writing his doctoral thesis on the genus *Cimicifuga*. Interestingly, *Comptonia peregrina*, the sweet fern of my youth in Michigan, was named in honor of James's ancestor, Henry Compton, Bishop of London, in the late seventeenth century. Song Kihun, a botanist from Chollipo Arboretum, flawlessly served as our guide and interpreter.

Spotting our car near the start of the pass, we continued on foot along the road and arrived at the trail head just as the sun rose over a one-dimensional collage of fog-shrouded peaks in the distance—gray on gray. While walking, I collected fruit of *Vitis coignetiae* from disheveled stems entangling a series of small trees and shrubs near the roadside. The grapes were small and acrid to taste, yet the handsome foliage was al-

Glossary

Aroid embraces all members of the family Araceae whose inflorescences are composed of a spadix and subtended by a leafy spathe (e.g., calla lily).

Bract is a reduced leaf subtending a flower or inflorescence.

Dioecious indicates production of male and female flowers on separate plants of the same species.

Floret is an individual flower within an inflorescence.

Glabrous surfaces have neither hairs nor projections.

Inflorescence is the flower cluster of a plant.

Pedicel is a stalk supporting flower or fruit.

Raceme is an inflorescence composed of a single main stem to which individual flowers are attached.

Sepal is the outer ring of floral parts (usually green).

Spadix is an elongated inflorescence of long flowers.

Spathe is a large leaf that partially covers the spadix.

Stoloniferous refers to stolons, which are horizontal branches from the base of plants that produce new plants from buds at their tip.

Taxa are ranks (e.g., genus, species, variety) in the formal system of plant classification.

ready showing the first signs of the magnificent oranges and reds to which it would ultimately transform. It performs admirably in the Pacific Northwest and will easily climb into the tops of our native conifers if allowed, though it can be confined to the trellis in a smaller garden.

After a short break, we began our ascent, but it became immediately apparent that progress would be slowed by the richness of species and volume of ripe seed. Glowing orange seed heads of *Arisaema angustatum* var. *peninsulae* were held upright atop handsome, mottled green stems contrasting with large compound leaves, which had yellowed and collapsed. Though the rich melon-colored flowers had long since faded, I was excited to collect seed of *Lychnis cognata* (= *L. fulgens*), which I have grown in my garden for several years. *Iris odaesensis*, with clumps of foliage similar to that of Pacific Coast species, grew abundantly in the grassy open areas and offered large quantities of seed. Nearby, the handsome blue fruit of *Caulophyllum robustum*, an herbaceous member of the Barberry family, was held on 18-inch leafless stems. In North America this is represented in cultivation by the only other species, *C. thalictroides*, which is native to the East Coast.

Above us, scrambling through small maples, were the vining stems of *Schisandra chinensis*, with drooping clusters of brilliant scarlet fruit. This genus, related to *Magnolia*, is represented in the Washington Park Arboretum by three species, all from Asia: *S. chinensis*, *S. propinqua* (on the west side of the greenhouse complex), and *S. glaucescens*. The flowers are an intriguingly beautiful deep blood red; both sexes are required for fruit production.

Slightly higher in elevation, we encountered dense thickets of a short bamboo, presumably a species of *Sasa*, which prevented serious exploration off the trail. The terrain was steep and dry with an overstory of oaks, ash, and species of *Lespedeza*. *Ribes* (currants) and *Lonicera* (honeysuckle) were common in areas uncolonized by the bamboo. Here we collected the red fruit of *Convallaria keiskei*, the only Asiatic lily of the valley. It is rare in cultivation and differs from the most commonly cultivated species, *C. majalis*, being smaller and less stoloniferous in nature.

After four hours of rigorous uphill climbing, we entered into an open and rich area of deciduous shrubs representing many genera commonly cultivated in Northwest gardens. Included were *Rhododendron*, *Weigela*, *Philadelphus*, *Syringa*, and *Berberis*. *Berberis koreana*, heavy in translucent red fruit, is among my favorites of the deciduous barberries, sporting oval, red-margined foliage of soft green in summer, changing to magnificent shades of orange in autumn. In the wild, it grew side by side with *Rhododendron schlippenbachii*, which is easily identified by its distinctive terminal whorls of obovate foliage. In mid-April, this species, known commonly as the royal azalea, produces large trusses of widely opened flowers in shades of pink to near white. Occasionally, it is encountered in Northwest gardens but is found only sporadically in nurseries and is not as frequently cultivated as its beauty merits.

Three species of maple, *Acer pseudosieboldianum*, *A. tschonoskii* var. *rubripes*, and *A. barbinerve*, were all beginning to show spectacular autumn reds and oranges. These species are currently represented in the maple collection of Washington Park Arboretum, providing a brilliant spectacle in mid-autumn near the Woodland Garden as well as the Himalayan Hillside. Interspersed throughout the vegetation was an array of herbs including many species of *Aconitum* (monkshood). *Aconitum volubile* was growing as a vigorous twining vine high into the overstory. I admire this uncommon species in my garden for its clusters of purple-blue hooded flowers in late summer, which contrast nicely with the yellow-foliaged *Weigela*, through which it grows.

Geranium krameri still offered a few flowers of silver-pink on trailing stems, though it was mostly for the splendid autumn tints of red that we admired this species and collected large quantities of seed. *Allium thunbergii*, a late-blossoming onion, was just now showing its small but pleasing heads of rosy pink on 8-inch stems.

Kihun encouraged only a brief lunch at the summit, as we were to leave the trail here and hike cross-country to (hopefully) find the car at the bottom. We ate on a helicopter pad, a frequently encountered, telltale sign of the tenuous nature of peace in this country.

While selecting the downward route, we came upon two specimens of *Lonicera vesicaria*, a rare endemic species of honeysuckle with remarkably large, quarter-sized, translucent red fruit crowded along the upright and barren branches. These created a handsome sight while back-lit by the rays of a late afternoon sun. To my knowledge, this shrub is not in cultivation in North America

and should prove to be a useful addition to our gardens for the fruit effect.

The flora of Kaibang-san transformed immediately as we entered the shady, moist ravine that led us downward over boulders and dense thickets of vegetation. The drought-tolerant oaks and ashes were replaced with many species whose dense canopy of foliage was far overhead and a rich assemblage of herbaceous woodland plants beneath. Sadly, we came upon three freshly fallen specimens of *Acer mandschuricum* (related to the paperbark maple, *A. griseum*). Because the only reported specimen of *A. mandschuricum* in the Washington Park Arboretum is actually *A. cissifolium*, a non-related species that it superficially resembles, I had wished to collect seeds from this northerly latitude. The branches, seeds removed, had been methodically stacked by commercial seed collectors beside the enormous trunks, like elephant carcasses stripped of their tusks and left to rot. I gleaned what few precious seeds remained of these rare maples. Earlier, we had seen felled specimens of *Kalopanax septemlobus* and *Sorbus commixta*, also chopped to alleviate the difficulties of more thoughtful collecting.

The number of vine species was large but frustratingly hidden, with all but their buttressing stems far above the forest canopy. Occasionally, the stream we followed widened, providing adequate light for a few vines or lianas to scramble closer to ground level. In one such location, *Actinidia kolomikta*, with tricolored foliage of white, pink, and green, shone through the approaching darkness, wending its way through *Magnolia sieboldii*, heavy in rich pink, drooping fruit. A nearby female specimen of this *Actinidia* species, in the branches of *Acer tegmentosum*, provided fruit which I sampled before collecting, its tart sweetness similar to kiwi. You can find an exemplary specimen of *A. kolomikta* in the entrance courtyard at the University of Washington's Center for Urban Horticulture, Seattle. The small maple on which this vine grew is among the loveliest of the stripebarked species. The intensity of the bark effect, however, is seemingly better developed in cultivation; none that I observed equaled in beauty those growing in the Arboretum's collection.

Exhausted, we reached the roadway and, fortunately, found our vehicle where we had left it twelve hours earlier. The ride to our lodging was quiet in tired reverence to the sights and sensations summoned by the plants of Kaibang-san.

Daniel J. Hinkley

Hanabusaya asiatica, a promising new perennial for Northwest gardens.

The evening was spent, as usual, cleaning and packaging the day's collections and completing notes of the day's events.

Rich and Anomalous Plants of Ulleong-do

I departed for Ulleong-do by ferry in a closed cabin well-seasoned with the odors of kim-chee and dried cuttlefish. The ride to this extinct volcano in the storm-ravaged East Sea between Korea and Japan lasted six hours over dead calm water. Abandoned as a military outpost in the 1500s, Ulleong-do was rediscovered in the late 1800s for its rich forests and the large quantities of cuttlefish in surrounding waters. With virtually no connecting roads, the ten island villages are linked only by mountain trails and by boat taxi.

My presence here was due to the rich and unusual plants that had been observed before me by Barry Yinger in the late 1970s as well as by Joseph Witt and other Washington Park Arboretum members during their successful Korean venture in 1982. The flora, insulated from the main-

(continued, page 22)

Promising New Korean Plants

My fall 1993 collections from Korea totaled 510, although this includes several duplicate taxa. I have shared my prepared seed list with several botanical institutions across the United States, Canada, and England, including Washington Park Arboretum, University of British Columbia Botanical Garden, Berkeley Botanic Garden, North Carolina State University Arboretum, and Smith College.

Species with seed of a short-lived nature were sown immediately in my nursery (Heronswood, Kingston, Washington); resulting plants will also be made available to the institutions listed above. Heronswood also will produce these collections for evaluation and eventual distribution through our catalog. Seeds of *Iris*, *Lilium*, and *Hosta* have been provided to the Species Iris Group of North America (SIGNA).

A few of the collections that deserve an in-depth evaluation of performance in the Pacific Northwest are listed below, with site of collection and associated species in the wild.

Hanabusaya asiatica (Campanulaceae) was found near the demilitarized zone (DMZ), in a dark ravine along a streambed with *Rodgersia podophylla*, *Acataea asiatica*, and *Saxifraga fortunei*. A perennial herb growing in shady conditions near water, *Hanabusaya*, which is very rare in cultivation, has large, nodding silvery blue bells to five inches in length.

Cimicifuga heracleifolia* var. *bifida (Ranunculaceae), which I found in dry, shaded woods beneath *Pinus thunbergii* and *Pinus densiflora*, is currently not cultivated in the West. This perennial produces large clumps of bold ternate foliage and erect racemes of fragrant white flowers to six feet tall.

Lathyrus davidii (Fabaceae), from northeast Korea, was found growing in an open, moist swale with *Staphylea bumalda*, *Aster scaber*, and *Astilbe chinensis*. Late summer clusters of nodding pea-like flowers are in shades of rich yellow with brown-orange markings, and the large tri-pinnate leaves grow to four feet in length. It is rare in cultivation.

Fagus multinervis (Fagaceae), from Ulleong Island, was found with *Tsuga sieboldii* and *Pinus parvifolia*. This endemic species of beech has bold, deeply veined leaves to six inches and silvery gray bark on a small tree to 35 feet. Rare in cultivation, ironically it is the major food source of the endangered Ulleong wood pigeon, just as the native American beech, *Fagus grandiflora*, was the major food source of the now-extinct passenger pigeon.

Paeonia japonica (Ranunculaceae), from Chiri-san National Park, was growing with *Sasa* species in dry shade under *Quercus aliena*. Rare in the wild and in cultivation, I collected *P. japonica* in a locality from which it was not currently recorded. The single white flowers on 18-inch stems are followed by striking metallic blue seeds attached to brilliant red follicles.

Acer mandschuricum (Aceraceae), of Kaibang-san, was found growing in moist ravines with *Magnolia sieboldii*, *Kalopanax septemlobus*, and *Acer tegmentosum*; it is one of four species of trifoliate maples. The compound leaves are more glabrous than its close relatives and take on especially brilliant colors of orange and red in autumn. This tidy tree or tall shrub grows to 25 feet and is uncommon in cultivation.

Carpinus coreana (Betulaceae), of Taehuksan Island, was found on dry rocky slopes in dense thickets with *Viburnum carlesii*, *Sorbus alnifolia*, *Camellia japonica*, *Euscaphis japonica*, *Cornus kousa*, *Stauntonia hexaphylla*, *Styrax japonica*, and *Grewia biloba*. An elegant and graceful small tree to 15 feet, the tidy leaves on pendulous branches resemble those of the Chinese elm, *Ulmus parvifolia*. As a rule the hornbeams respond admirably to the climate of the Pacific Northwest, and this species, although rare in cultivation, may show promise as a small deciduous tree for the urban landscape.—***Daniel J. Hinkley***

land by distance, has been shaped over time to a blending of Chinese, Japanese, and Korean with an overriding vernacular accent.

This day I had risen to a starry sky and readied my provisions for what would be the longest and most memorable trek on the island. It had thus far been, both botanically and culturally, an extraordinary experience, having explored in detail the steep southern slopes of Mt. Songinbong, which rises sharply from the sea to 3247 feet. Today I would venture to the northern shore by boat and attempt a successful navigation by foot back to my lodging in the village of Dodong.

Because of a stern warning from Song Kihun as we parted company on the mainland, I left early in the morning. Two years earlier, he and four other botanists hiked the identical route and had barely reached the summit at nightfall. Their return consisted of five hours of treacherous, nondiscernable trail lighted by a solitary flashlight.

A brisk walk at early dawn took me up and over a narrow ridge and downwards to the adjacent village of Jeodong where I would catch a 6:30 A.M. boat to Chonbu on the northern shore. Arriving early, I walked along a coastal path to a grove of trees perched high above the water, which I recognized immediately as *Neolitsea sericea*, an evergreen member of the Lauraceae. This plant is rare in cultivation and is greatly underused as a lovely small tree for the Pacific Northwest. A single specimen in the Arboretum collection can be found just south of the Woodland Garden above the upper trail. Several fine examples also grow in the Asian Garden at the University of British Columbia Botanical Garden. Though the broad, glossy foliage with lighter undersides is handsome throughout the year, its most remarkable attribute is the new growth in late spring, which emerges limp and coated with gold silken hairs. I gathered seed from one specimen, heavy with ripened orange-red fruit, before racing back to the dock and my waiting boat.

Two hours later, I disembarked and walked to the outskirts of the village between mountainous piles of newly harvested red peppers and racks of bamboo stakes piercing the previous night's catch of cuttlefish. Uncertain of my direction, I passed the last cultivated plots of land and soon became immersed in a phenomenal tangle of vegetation, which I deciphered slowly and deliberately.

Alangium platanifolium, heavy in metallic blue fruit hidden beneath bold foliage turning shades of soft yellow, was growing as a single 15-foot specimen along the road. Though common in the mountains of the northeast mainland, this was my first and only encounter with this species on Ulleong-do. Newly planted in the Washington Park Arboretum near the stream in the Woodland Garden, this shrub has large, lobed, maple-like foliage, striking in summer and autumn; the fruit follows drooping white flowers with strongly reflexed petals. It possesses a great, untapped potential for broadening the selection of deciduous shrubs utilized in Northwest gardens. Beneath it grew a confused blending of both *Hydrangea anomala* and *Schizophragma hydrangeoides*. Though I ultimately could distinguish one from the other, the similarity of their foliage was at first daunting. The former, commonly called climbing hydrangea, had three- to five-lobed sepals of its sterile flowers surrounding flattened heads of fertile florets, whereas the sepals of *Schizophragma* were un-lobed and much larger. In the Washington Park Arboretum, both species grow near one another up tall Douglas-firs in the Camellia Section of the Arboretum, making an easy comparison possible.

Abundant and dense thickets of *Tripterygium regelii* grew here as well, impeding my progress through and under vast expanses of its rampant growth. This vine in the bittersweet family produces conical heads of creamy-colored papery-sheathed fruit in autumn. The World Health Organization currently is evaluating a compound found in this species for its inducement of temporary male sterility.

At 1500 feet, the terrain opened into natural meadows, which were rich in the ripened seed-filled heads of *Lilium hansonii*. This endemic lily species has sets of whorled leaves along 2-foot stems topped earlier by lovely nodding yellow-gold flowers with purple spots at the base of each petal. *Polygonum sachalenense* and *Aralia continentalis* were also common, the former being naturalized and loathed in the Northwest as the pestilent giant Japanese knotweed. *Aralia continentalis*, an herbaceous species similar to *A. californica* (which occurs in southern Oregon and northern California) was common along the damp forest margins. Its multitudes of ripened shiny black-purple fruit, held in starry clusters along arching 6-foot stems, made a lovely sight.

Climbing again into more heavily wooded slopes, I suddenly became aware of the immense quiet that surrounded me, hearing only the sizzle

of dry leaves in the ocean breeze, the occasional slap of wings, and the hollow, ghostly hoot of the endangered Ulleong wood pigeon. Two endemic species of maple, the only maple species occurring on the island, grew here. *Acer mono* var. *okomotoanum* created a sizeable tree that can reach 50 feet, with rounded, many-lobed leaves similar to an enormous version of *Acer japonicum*. Later I discarded several collections of fruit from this boldly foliaged maple after finding the seed to be parasitized. Though represented in the collections of the Arboretum, this species deserves greater use by Pacific Northwest horticulturists. In contrast, *A. tatsienense*, similar in habit to *A. pseudosieboldianum*, was a small tree with handsome, finely textured leaves, and it provided copious quantities of viable seed.

A large dogwood, *Cornus macrophylla*, also common in these woods, was heavy in ripened blue fruit held upright on pink pedicels. Similar to *Cornus controversa*, which has widely spreading and horizontally tiered branches, the big-leaf dogwood is easily distinguished by its opposite (rather than alternate) leaves. It is too infrequently found in cultivation, making a handsome specimen in foliage, flower, fruit, and form.

Sorbus commixta, a mountain ash with great clusters of orange fruit, framed numerous and astounding views of the surrounding land and water. I had seen the fruit for sale by street vendors in Dodong a day earlier but never learned how it was prepared or if, indeed, it was even consumed.

A rich assemblage of familiar shrubs commonly found in Northwest gardens occurred on the slopes, most notably *Camellia japonica*, with ripening fruit of cherry red; *Aucuba japonica*; *Callicarpa japonica*, with lavender fruit; *Clerodendrum trichotomum*, whose metallic blue fruit was surrounded by swollen magenta sepals; and *Rhododendron brachycarpum*. *Stephanandra incisa*, a deciduous rosaceous shrub related to *Spiraea*, was also common. I cultivate the more prostrate form, *S. incisa* var. *crispa*, in my garden and appreciate its brilliant yellow fall color and snaky cinnamon-colored stems in winter.

As I approached 2700 feet, the ground cover became nearly monochromatic with the enormous, glossy black-green leaves of *Hepatica maxima* interspersed with *Maianthemum dilatatum*, false lily of the valley (occurring in identical form on our property in Kingston). The hepatica, though very rare in cultivation, should perform well in this climate and will be a worthy addition

to the shady garden for foliage effect alone; a bonus of starry blue to white flowers, however, is produced abundantly in very early spring. Since the glossy, plum-black seeds of this species were just ripening, I collected a large quantity before continuing onward.

Along damp seeps I found diverse and luxuriant colonies of several fern species occurring with *Arisaema angustatum* var. *peninsulae* f. *variegata*. The compound leaves of this aroid, 15 inches from tip to tip, were boldly marbled with silver, similar to the more diminutive and frequently cultivated *Arisaema sikokianum* of Japan. I collected numerous heads of ripened orange seeds of this species, which, surprisingly, grew here in standing water.

After coursing the crater's edge, my descent to the southern side of the island was more brisk than I had wished, for it was already early evening and I had several miles to travel. Just over the pass, I collected seeds of *Tsuga sieboldii* and *Pinus parviflora*, two conifers that are found nowhere else in Korea. The hemlock forms a much smaller tree, to 35 feet, than our native *Tsuga heterophylla* and has wide, glossy needles providing a distinctive texture to the garden. The pine has a small following in Western horticulture, presenting beautiful bluish-white needles in bundles of five. Feasting squirrels provided my booty; I collected the harvest they had dropped from above.

In an open swale, I was drawn to the twining stems of another kiwi species, *Actinidia polygama*. The half-silvered leaves looked as if dipped in white chocolate. There is a fine example clambering through a sizeable western red cedar in the Arboretum, visible from Arboretum Drive East at the head of Rhododendron Glen. I was perplexed by the presence of fruit on this specimen, expecting to observe, as with *A. kolomikta*, the variegated foliage on male specimens only.

Continuing swiftly homeward, the remaining mile to Namyang was lit by a waxing moon sliding behind a ridge as the first lights of the village below came into view. With an additional three miles of seaside trail ahead of me, I witnessed brilliantly lit cuttlefish boats departing from my destination, the harbor of Dodong, and scattering to the open sea.

Diversity in Chiri-San National Park

It was my last full day of collecting in Korea and our second and last day on Chiri-san, a mountainous peak within an expansive national park located on the southcentral Korean peninsula. Three days earlier we stood disappointed in early morning darkness on the ferry dock of Taehuksan Island in the China Sea. Our 6 A.M. ferry to the isolated and botanically fantastic island of Sohuksan had just been canceled due to an approaching typhoon. Since we had thus far spent a full day exploring Taehuksan, and not wishing to be held captive by the storm, we decided to depart by the earliest possible boat to the mainland. Three days later the same typhoon claimed over two hundred lives in a capsized ferry on the same route.

This time my exploring companions were Korean botanist Chong Munyong; Bleddyn and Sue Wynn-Jones of Crug Farm Nursery in Wales; and Chollipo Arboretum intern, Eric Hammond of Poulsbo, Washington, who had worked in my nursery two years before. Rob Nicholson of Smith College had joined us in the village of Cruye the night before.

Our climb was to the summit of Mogodan, one of several high peaks in the park. The overstory of trees immediately proved to be the richest deciduous woods I had experienced in Korea and certainly the most exciting I had ever seen in my life. *Stewartia pseudocamellia* var. *koreana* was common with several specimens rising to 60 feet and diameters at breast height of two feet. Its mottled bark provided a rich melding of grays, greens, browns, and silver, with a canopy of glossed foliage transformed to burgundy. I also saw *Acer barbinerve*, *A. mono*, *A. palmatum*, *Quercus serrata*, and *Magnolia sieboldii*.

I frequently found heavily fruited specimens of *Styrax japonica*, replacing the fragrant snowbell, *Styrax obassia*, which was common in the mountains of the north. Shrubs included three species of *Lindera*, a genus of the Lauraceae, which possesses a large number of species worthy of addition to the Northwest garden. Two of these, *L. obtusiloba* and *L. glauca*, are well known and admired in the Arboretum's collection. *Lindera obtusiloba*, found in the Woodland Garden, forms a small multistemmed tree or large shrub with handsome lobed leaves, which turn to magnificent tones of golden yellow in autumn. Though dioecious, in early spring both sexes provide a visual display of rich yellow flowers plastered along the bare branches. The large, glossy black-blue fruit is formed only on the female specimens, however. *Lindera glauca*, found on the flats near the Arboretum's collection of *Acer rubrum*, forms a much

smaller shrub in comparison. I admire this species mostly for the dry, sandy-russet foliage, which remains attached throughout the winter, dropping just as the new foliage emerges in spring.

It was, however, *Lindera erythrocarpa* that proved to be the most handsome plant of the three, with masses of red fruit on 25-foot-tall female specimens contrasting with unlobed foliage of splendid autumnal yellow. Another fruiting shrub, *Symplocus paniculata*, was common, providing an electrifying spectacle of color with masses of deep blue fruit brandished along the 8-foot stems. Though this species is cultivated in the Northwest, it should be included more frequently in our gardens for its magnificent fall display.

As we collected seeds of these species and others, local women nearby were collecting acorns from *Quercus aliena*, which they carried in enormous bundles balanced atop their heads. The fruit inside, once dried, would ultimately become an acorn jelly served as a condiment with nearly every meal, though I never discerned any real flavor.

We had our lunch along a rushing stream, which was surrounded by dense thickets of *Sasa*. After eating, I walked upward on rocks along and in the creek and found several specimens of *Actaea asiatica*, the only Asian representative of a genus of perennial woodland herbs. Unlike the bright red fruit of *A. rubra*, which is a common native woodland species in the Pacific Northwest, the fruits of this species are a shining bluish black held by pink pedicels on 12-inch racemes. The foliage was nearly indistinguishable from adjacent specimens of *Astilbe*.

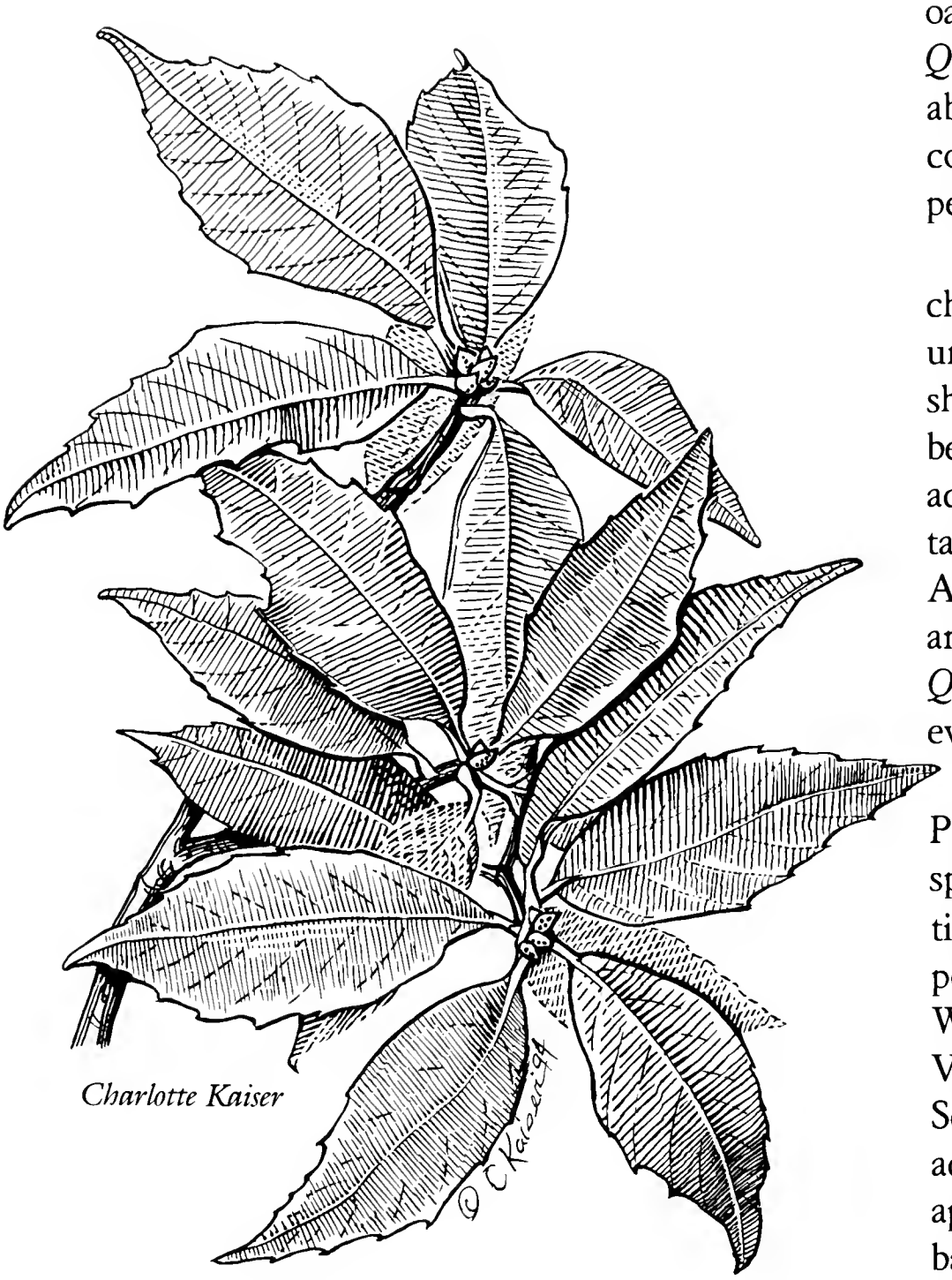
Our final ascent to the peak took us into windswept subalpine meadows rich in dwarfed hummocks of the winter-blossoming *Rhododendron mucronulatum* var. *ciliatum*. The meadows were also rich with herbaceous plants well-known to many Northwest gardeners. Among these, most notable was a species of toad lily, *Tricyrtis dilitata*; a daylily, *Hemerocallis fulva*; *Sanguisorba hakusanensis* with the red-pink nodding spikes; and an undetermined species of *Hosta*. A short hike down the opposite slope took us into a luxuriant open woodland, with an overstory of maples, stewartia, and magnolia. Occasional specimens of the Japanese yew, *Taxus cuspidata*, and its larger foliaged relative, *Cephalotaxus koreana*, were found throughout with the prominent understory shrub being *Hydrangea macrophylla* ssp. *serrata* var. *acuminata*. This hydrangea, with bluish-white lace-cap flower heads, had long since blossomed. The mountainside must be a sight to behold in July when they are in their full glory.

At ground level was a rich blending of herbaceous perennials, including *Patrinia saniculaefolia*, *Synilesis palmata*, and *Ainslaea acerifolia*. All three of these deserve attention in the Northwest for moderately shaded gardens. The *Patrinia* created low colonies of nearly prostrate stems and upright clusters of yellow flowers to six inches. The other two species, both members of the Compositae, were an old friend and a new acquaintance. *Synilesis palmata* was common in dry shaded areas throughout much of the Korean peninsula where it produces leafy colonies of palmate foliage borne atop 12-inch stems. The most remarkable season of this plant is during its emergence in early spring. The folded leaves, coated with dense white silken hairs, push up through the soil, appearing remarkably like shaggy mane mushrooms. I find the foliage of this species (more deeply divided in *S. aconitifolia*) worthy of inclusion in the garden, although the pinkish white inflorescences produced along 18-inch spikes, like so many shade-loving composites, are a bit on the disappointing side. Somewhat similar in foliage was *Ainslaea acerifolia*, which I collected in Korea on several occasions. The foliage borne atop 8-inch stems was glossy green and sharply lobed, forming a sizeable and handsome ground cover. The flowers, like those of *Synilesis*, were not showy.

The light was dimming when we reluctantly pulled ourselves away and hiked back to the top, then briskly down to our car. As we drove down the mountain and back to our lodging, we pulled to the side of the road to watch the sun sink behind hills now no more than jagged lines of foggy gray. This was the last sunset I would experience during this remarkable journey to the mountains and islands of South Korea.

Dan Hinkley co-owns Heronswood Nursery in Kingston, Washington, and is a member of the board of The Arboretum Foundation and the editorial board of the *Washington Park Arboretum Bulletin*. He has also traveled to Japan and awaits his first visit to western China.

This venture was made possible with the financial and logistical support of The Arboretum Foundation, Seattle, Washington, and C. Ferris Miller, Chollipo Arboretum, Korea.



Charlotte Kaiser

The Hardy *Quercus stenophylla*

by Timothy Hohn

The flora of the Far East is brimming with interesting and attractive broad-leaved evergreens. In addition to the many stunning rhododendrons found in China, Japan, and Korea, there are hundreds of unknown and under-utilized broad-leaved evergreen trees that horticulturists in this country are just now beginning to appreciate. Of this evergreen flora (or *laura-silvae*, as the broad-leaved evergreen plant community is often described), many of the hardiest species are found in Korea. *Quercus stenophylla*, a handsome and hardy evergreen oak, is one of these.

Based upon the authority of French monographer A. Camus, this tree is considered by many to be a species distinct from several other similar evergreen oaks found in China, Japan, and Korea. This complex of relatively compact, attractive oaks includes *Quercus acuta*, *Q. gilva*, *Q. glauca*, *Q. myrsinifolia*, *Q. nubium*, *Q. salicina*, and probably others. Their identities and names are often confused, but happily their highly ornamental appeal is equitable.

To the casual observer, all of these trees are uncharacteristic of oaks. Their relatively small stature (often no more than 30 feet in the garden), shade tolerance, and leathery, unlobed leaves can be misleading. The inevitable appearance of acorns, however, soon dispels all doubt as to their taxonomic affiliation. Barry Yinger, well-known American authority on and aficionado of Japanese and Korean ornamental plants, believes that *Quercus stenophylla* is the standout among these evergreen trees useful for their attractive foliage.

Indeed, when I was curator of the Washington Park Arboretum, the large, glossy leaves of a specimen in the old nursery captured my attention. I had it transplanted to a more prominent position among some azaleas not far from Azalea Way at its northern end close to the Graham Visitors Center. Received as a tiny seedling from South Korea's Chollipo Arboretum, Arboretum accession 86-82 has since grown to be a small tree approximately 10 feet tall and half as wide. Its bark is smooth, greenish brown, and peppered with small, glandular openings—lenticels—nearly like a birch. Here and there one many detect a wrinkled and muscular texture around the bases of branches. The leaves are a light to medium green, depending upon exposure, and *Carpinus* (hornbeam)-like in shape—oval and tapered at both ends, with parallel veins. Each one is thick and leathery, up to five inches long with shallow, wide-spread teeth along the margin from the midpoint to the tip.

The undersides of the leaves are light green and slightly silvered, enhancing the fluttering movements of leaves in a breeze. Each stout petiole supports the leaf in a nearly horizontal orientation, and the golden green color of the petiole bleeds down the midrib of each leaf as a distinctive stripe. The leaves are rather tufted at the branch ends of the tree in the Arboretum, but I suspect that this is due to the tree's evolving acclimation to the new, sunnier planting site.

The Arboretum would have to acquire a larger collection of this desirable oak in order to reap the benefits of a reliable seed source for nursery introduction. Select mail-order nurseries may carry *Quercus stenophyhlla* and certainly the more pop-

ular *Q. myrsinifolia*, another handsome small tree. The Washington Park Arboretum or the Pat Calvert Greenhouse (run by Arboretum Foundation volunteers) may be able to root cuttings or graft small plants by request.

Once you have obtained a tree, pamper it in a sunny location or one with dappled shade and an organic, well-drained soil. Unlike its relatives in the western United States, this tree will benefit from periodic summer irrigation although this is not a requirement. Even under good growing conditions, *Quercus stenophylla* will not rocket up to the sky, instead retaining the typically moderate growth rate of oaks. Nevertheless, this is an exceedingly handsome small specimen or patio tree, and it blends well with other broad-leaved and flowering plants in a mixed, woody border or screen planting.

One closing note of concern: The primarily coastal and lowland *laura-silvae* community, of which *Quercus stenophylla* is a part, is under intense urban and agricultural pressure in Korea and Japan, to the detriment of precious botanical and horticultural resources. The collecting efforts of Dan Hinkley (of Kingston, Washington's Heronswood Nursery), the United States National Arboretum, and others, when well-planned and carried out with an eye toward conservation, are an important part of a broad preservation strategy for this important plant community. I look forward to the preservation and introduction of more garden-worthy broad-leaved evergreen trees from Korea of the caliber of *Q. stenophylla*.

Timothy Hohn, of Calyx Consulting/Design, is former curator of the Washington Park Arboretum and a frequent contributor to the *Bulletin*.

Glossary

Lenticel is a small, glandular opening in woody stems for exchange of gasses between the atmosphere and the stem.

Petiole is a leaf stalk.

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New on the Shelves
of the Elisabeth C. Miller Library

Courtesy, University Photography, University of Washington

by Valerie Easton

Coffey, Timothy. *The History and Folklore of North American Wildflowers*. New York: Facts on File, 1993. ISBN 0-8160-2624-6. I want to sit down and study this book indefinitely: It contains the richness and variety of knowledge about our bounty of wildflowers that we would all love to have stored in our memories. Over 350 19th century and early 20th century engravings illustrate entries on wildflowers known from pre-colonial times up until today. Each plant's history and usefulness—whether as medicine, cosmetic, charm, food, or fiber—is given, along with the various names and even references in literature. The author worked for over a decade compiling and researching this impressive, thorough work covering over 700 species of wildflowers and their impact on the human experience in North America.

Lacy, Allen. *Gardening with Groundcovers and Vines*. New York: HarperCollins, 1993. ISBN 0-06-016913-3. Allen Lacy started out to write a brief chapter on ground covers for another book but found the topic an "insistent" one with its own ambitions. What is wonderful about this new book is that it is not an encyclopedic listing of different ground covers and vines (although many unusual and interesting plants are included) but a knowledgeable and personal discussion of how to use these plants as part of the whole garden. Both in text and color photos, ground covers mingle with perennials, shade the feet of trees and shrubs, and spill over pathways. Vines climb up trellises and walls or weave through other plantings to create color, depth, and diversity in the garden. Exceptional photographs by Cynthia Woodyard, an Oregon resident, well illustrate Lacy's garden-making theme and include many West Coast examples, including the moss garden at the Bloedel Reserve, Bainbridge Island, Washington. You might buy this book because of the author's extensive knowledge and the numerous color photographs, but you will read it cover to cover for Lacy's wit and experienced opinions, such as, "I like *Liriope muscari* a whole lot, which is good, because I have plenty of it," and his reasoning on including vines in the book: "Vines were appealing, considering the beauty of clematis, roses, morning glories, and wisteria—wisteria in all of its loveliness and wickedness."

Minter, Sue. *The Healing Garden: A Natural Haven for Body, Senses and Spirit*. Boston: Charles E.Tuttle, 1993. ISBN 0-8048-1975-0. The scope of this new book by the curator of the Chelsea Physic Garden, London, is what makes it truly notable. In her preface, Sue Minter says, "All life on earth depends on plants, yet many of us only realize this simple truth through contact with plants in our gardens. . . This book attempts to put plants back at the forefront of medicine, and also to broaden the definition of healing to include the way that the garden is used for recreation, self-expression and creative interplay with the natural world." These latter ambitions are most interestingly realized in chapters on sound, scent, water and wildlife in the garden, and the contribution of various design styles to our interaction with the garden.

What other book includes both a discussion of plant-based cures for stress-related illnesses and a recipe for spiced pickling vinegar? Or the history of homeopathy as well as the design of Zen gardens? Minter's experienced vision of plants as healers and gardens as spiritual havens is beautifully realized in this unique volume.

For Further Information:

Korean Plants and Gardens

by Valerie Easton

Although there is little information about the plants and gardens of Korea, some books and periodicals are available. Most of the materials have not been translated into English, but all listed below have English indexes and Latin nomenclature. Some also have table of contents, preface, or (where noted) translation in English.

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Valerie Easton is a librarian at the University of Washington's Center for Urban Horticulture, a member of the *Arboretum Bulletin* editorial board, and a freelance writer.

Book Review

Winter Ornamentals. Daniel J. Hinkley. Seattle: Sasquatch Books, 1993. ISBN 0-912365-87-0. $9.95, paper.

Daniel Hinkley is very well known to admirers and users of the Washington Park Arboretum, to the green industry of the Pacific Northwest, and more recently to a national audience through his mail-order nursery catalog, numerous articles, and public lectures. He now has a superb new book in the Cascadia Gardening Series, which will enrich the understanding and potential uses of landscapes, both in the Pacific Northwest (where the book originates) and nationwide where the ideas and inspiration will filter out to a wider audience.

Hinkley lived at the gatehouse in the Washington Park Arboretum while obtaining his master's degree at the University of Washington Center for Urban Horticulture, and he later collected plants extensively from throughout the world for trial and evaluation at his magnificent garden in Kingston, Washington. He knows the climate and plant potentials of the Pacific Northwest thoroughly from years of firsthand trials, and his writing is radiant with the joy of sharing abundant knowledge and experience—all "what works" and "what doesn't" and the "whys" of both.

With the typical landscape emphasis on the spectacle of spring-focused gardens, we cheat the other seasons with less space allocated to their exploration. Hinkley states his mission in saying, "In this book, I have assembled a palette of plants whose cycle . . . will help you seamlessly link the four seasons in your landscape." And he not only assembles the palette, he also discusses the practical considerations of how to analyze your site, how to make plant choices (including coordinating the additional information), and even where to go to find public gardens to observe the plants discussed. A full spectrum of plant types is presented with coverage of annuals, bulbs, perennials, vines, shrubs, and trees of all kinds.

The multiple ways that plants can be of winter interest are discussed in detail—bark, foliage, flowers (with much discussion of the fragrance inherent in many winter-flowering plants), fruit, color, texture, etc. There are exceptionally useful tables compactly summarizing all of these characteristics in an appendix, and eight pages of superb quality full-color photographs, which demonstrate the full range of effects that can be realized from the plant choices provided. As a long-time enthusiastic proponent of the year-round landscape and landscaping for winter interest, I find this book to be practical, while presenting plants that will both comfort the beginner with their familiarity and availability and entice the long-time gardening enthusiast with new choices to intrigue and challenge their skills. When one reads "When *Daphne blagayana*, with its terminal clusters of creamy, fragrant flowers, is planted among the red fruit of *Gaultheria procumbens*, the effect is a treasure of diamonds and rubies," one is inspired to rush to the garden center and buy and plant madly. Add *Winter Ornamentals* to your library; I highly recommend it.—*reviewed by J. C. Raulston.*

Dr. J. C. Raulston is the director of the North Carolina State University Arboretum and professor of Horticultural Science. His prolific plant introduction program at NCSU Arboretum has provided many new plants of year-round interest to American nurseries and gardens.

In the Washington Park Arboretum

by John A. Wott

Photo by Jordan Reams, University of Washington Photography

Collecting Trip Yields New Korean Material

We are very fortunate that Daniel Hinkley, Heronswood Nursery, has offered the Arboretum our choice of any of the approximately 300 individual taxa that he collected on his fall 1993 trip to Korea. Many of his collections are of herbaceous species and a number are already represented in the collection. We have selected 73 taxa to add to our collection, with 41 of these being new to us. The others are replacements of senescent plants or poor provenance material. The Arboretum Foundation co-sponsored Hinkley's trip.

New Zealand Garden Now a Reality

"The New Zealand High Country, an Eco-Geographic Exhibit of Select New Zealand Plants," our first Arboretum garden of New Zealand natives, was officially dedicated on Sunday, November 31, 1993, by the Honorable Denis McLean, New Zealand ambassador to the United States, and Mrs. McLean. Funding for the garden came from Dr. H. John R. Bollard and the Seattle-Christchurch Sister City Committee. Already, it has become a focus of attention at the south end of Arboretum Drive East. As almost all of the plants are broad-leaved evergreens, the garden is interesting all year-round.

Although the climate of New Zealand is much different from that of the Puget Sound, we believe that plants from alpine and subalpine (mountainous) scrub areas may hold promise for our climate. The planting is designed to mimic the appearance of a subalpine tussock grassland, complete with a trail meandering through a small "pass" created by boulders. It is comprised of 93 individual plants, representing 29 taxa. Our Arboretum staff was responsible for completing the final plan and for coordinating and implementing

Joy Spurr

Quercus dentata, the deciduous Korean Daimyo oak (here with its acorns), in the Washington Park Arboretum.

it. Christina Pfeiffer, horticulturist; Tracy Omar, recorder; and Barbara Selemon, propagator, comprised the project lead team.

Three taxa in the New Zealand Garden are entirely new to our collection. They are:

Aristotelia fruticosa (11-91) (Elaeocarpaceae): The plants were grown from seed received from the Department of Scientific and Industrial Research, Wellington. This shrub, found in subalpine forests, grows to five feet, with very showy berries, which are dark red to nearly black.

Astelia nervosa (100-88, 105-88) (Liliaceae): Seeds were collected by former Curator Timothy Hohn on Mt. Ruapehu, Tongariro National Park, on North Island, 1000 meters in elevation (3250 feet). These plants are grown primarily for their rosettes of evergreen foliage and for their bright, orange berries. This New Zealand endemic is found in subalpine meadows.

Metrosideros umbellata (401-89, 118-88) (Myrtaceae): Grown from seed collected by former Curator Timothy Hohn in Arthur's Pass, South Island, this endemic can grow to a height of 40 feet. In cultivation, it generally forms a dense shrub of 10 to 15 feet in height.

Winter Weather Swings By

While the New Zealand Garden was built and dedicated in near perfect autumn weather, we all awoke on Monday, November 22, to find the wind blowing, snow on the ground, and rapidly falling temperatures. Our grounds staff covered the newly planted New Zealand plants.

The day before, the temperature high was 50°F, falling to 27°F that night. Twenty-one mm (24.5 mm = 1 inch) of snow was also recorded. On Monday, November 22, the high was 28°F, the low, 22°F. During that week, the day temperature rose into and through the 30s, but night lows stayed near 20°F until November 29. This was the beginning of cold hardiness testing for the New Zealand plants.

National Holly Society Grant

A National Holly Society grant of $1500 will provide improved signs to help the public better understand the Arboretum's Holly Collection at the south end of Arboretum Drive East. Arboretum Foundation member Virginia Morell assisted in the grant proposal and in obtaining several new hollies for the permanent collections. They are *Ilex* 'Lib's Favorite' (*I. integra* × *I. cornuta*; accession 181-93); *I. crenata* 'Soft Touch' (accession 182-93); *I.* 'Bessie Smith' (*I. latifolia* × *I. cornuta*; accession 184-93). The plants will be grown for one to two years at Union Bay Nursery, then planted as part of the continuing renovation of the Holly Collection.

KMTT Radio Green Team Volunteer Project

A group of 60 volunteers from the Mountain Green Team descended on patches of ivy and weeds, and mulched and edged beds on the north end of Sumac Hillside on Saturday, November 13, 1993. We are most grateful for these volunteers, for whom this makes the second volunteer effort in the Arboretum.

Director Visits Other Gardens

During November 1993, I visited several botanical gardens and arboreta in my capacity as secretary-treasurer of the International Plant Propagators' Society. They included the National Arboretum (Washington, DC), Lewis Ginter Botanical Garden (Richmond, VA), Brookside Gardens (Wheaton, MD), North Carolina State Arboretum (Raleigh, NC), North Carolina Botanical Garden (Chapel Hill, NC), and Riverbanks Zoo and Botanical Garden (Columbia, SC). During the visits I met with directors and other staff concerning governance, goals, objectives, and ideas for further planning. All gardens are talking about issues relating to the public/private partnership.

Horticulturist Receives Award

Arboretum Horticulturist Christina Pfeiffer was awarded the 1993 Award of Merit for "Service and Dedication to the Pacific Northwest Chapter, International Society of Arboriculture." Christina has been instrumental in the education and outreach program of the Society. Through her efforts, we now have Arboretum Arborist Lou Stubecki assisting us in the care and management of all of our trees. Both of them have been instrumental in obtaining much support from area arborists. Proper management of the Arboretum's trees was the theme of the program presented in October 1993 by Christina and Lou, "Gardening in the Tree Tops," which drew 25 persons.

John A Wott, Ph.D., is director of Arboreta, Washington Park Arboretum, University of Washington, Seattle. The University of Washington is responsible for the management of the collections and the associated arboretum programs, working cooperatively with the City of Seattle and The Arboretum Foundation. Wott is professor of Urban Horticulture, Center for Urban Horticulture, University of Washington.

WASHINGTON PARK
ARBORETUM

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